COMMONWEALTH OF PENNSYLVANIA

DEPARTMENT OF AGRICULTURE

BULLETIN No. 277

TABULATED ANALYSES OF

Commercial Fertilizers

FROM SAMPLES SELECTED IN ACCORDANCE
WITH ACT OF MAY 1, 1909

BY THE

PENNSYLVANIA DEPARTMENT OF AGRICULTURE

From August 1 to December 31, 1915

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COMMONWEALTH OF PENNSYLVANIA.

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The Act of 1st May 1909, Commonly Referred to as "The New Fertilizer Law" is as Follows:

No. 205.

AN ACT

To regulate the manufacture and sale of commercial fertilizers; prescribing penalties for its violation, and repealing an act, entitled "An act to regulate the manufacture and sale of commercial fertilizers; providing for its enforcement, and prescribing penalties for its violation," approved the twenty-fifth day of March, Anno Domini one thousand nine hundred and one.

Section 1. Be it enacted, &c., That every package of commercial fertilizer sold, offered, or exposed for sale, for manurial purposes within this Commonwealth, except the dung of domestic animals, lime, marl, and wood-ashes, shall have plainly stamped thereon the name and address of the manufacturer or importer and his place of business, the net weight of the contents of the package, the brand or trade-name of the fertilizer the package contains, and an analysis stating the percentage such fertilizer contains of nitrogen in an available form, of potash soluble in water, of soluble and reverted phosphoric acid, and of insoluble phosphoric acid.

Section 2. Every manufacturer or importer of commercial fertilizers, as specified in section one of this act, shall, on or before the first day of January of each year, or before offering them for sale in this Commonwealth, file annually with the Secretary of Agriculture a statement of the names and number of brands of such commercial fertilizers, having distinct trade-names, that he shall offer for sale during the next ensuing year, and a copy of the analysis of each one of such brands of commercial fertilizers, as required by section one of this act.

Section 3. In addition to the statement required by section two of this act, every manufacturer or importer of commercial fertilizers shall, on or before the first day of January of each year, or before offering them for sale in this Commonwealth, file annually with the Secretary of Agriculture an affidavit showing the amount of each brand of fertilizer, having a distinct trade-name, sold within the Commonwealth during the last preceding year; and if the said amount shall be one hundred tons or less, he or they shall pay or cause to be paid to the Secretary of Agriculture the

sum of fifteen dollars for each and every brand of such commercial fertilizer, having a distinct trade-name sold within the State during the last preceeding year: and if the said amount shall exceed one hundred tons, and be less than five hundred tons, he or they shall pay the sum of twenty dollars, as aforesaid; and if the said amount shall be five hundred tons or more, he or they shall pay the sum of thirty dollars, as aforesaid. If such manufacturer or manufacturers, importer or importers, shall not have made any sales within the Commonwealth during the preceding year, he or they shall pay the sum of fifteen dollars upon each such brand, as aforesaid: Provided, That all monies so received shall be immediately paid by the Secretary of Agriculture into the State Treasury, for the use of the Commonwealth.

Section 4. No person shall sell, offer, or expose for sale, in this State, any pulverized leather, hair, ground hoofs, horns, or wool waste, raw, steamed, roasted, or in any form, as a fertilizer, or as an ingredient of a fertilizer or manure, without an explicit statement of the fact; said statement to be conspicuously affixed to every package of such fertilizer or manure, and to accompany and go with every lot, parcel, or package of the same.

Section 5. Any person or person selling, offering, or exposing for sale, any commercial fertilizer or any brand of the same, having a distinct trade-name, without the analysis required by section one of this act, or with an analysis stating that it contains a larger percentage of any one or more of the above-named constituents than is contained therein, or for the sale of which all the provisions of sections two and three have not been complied with, or any person violating any of the provisions of section four of this act, shall be guilty of a misdemeanor, and, on conviction, shall be sentenced to pay a fine of not less than twenty-five nor more than one hundred dollars for the first offense, and not less than two hundred dollars for each subsequent offense. It shall be the duty of the Secretary of Agriculture to enforce the provisions of this act, and all penalties, costs, and fines recovered shall be paid to him or his duly authorized agent, and by him shall be immediately paid into the State Treasury, for the use of the Commonwealth.

Section 6. The Secretary of Agriculture is hereby empowered to collect samples of commercial fertilizers, either in person or by his duly qualified agent or representative, and to have them analyzed, and to publish the results for the information of the public; and for this purpose the said Secretary of Agriculture, such assistants, agents, experts, chemists, detectives, and counsel as he shall duly authorize, shall have full access, ingress, and egress to and from all places of

business, factories, barns, buildings, carriages, cars, and vessels, used in the manufacture and transportation, or sale, of any commercial fertilizer. They shall also have power to open any package or vessel containing or supposed to contain any commercial fertilizer, and take therefrom samples for analysis, upon tendering the value of said samples.

Section 7. The term "commercial fertilizers," as used in this act, shall be construed to mean any and every substance imported, manufactured, prepared, or sold for fertilizing or manuring purposes, except the dung of domestic animals, marl, lime, and wood-ashes, and not exempt by the provisions of section one of this act.

Section 8. This act shall go into effect on and after the thirty-first day of July, one thousand nine hundred and nine; and the act, entitled "An act to regulate the manufacture and sale of commercial fertilizers; providing for its enforcement, and prescribing penalties for its violation," approved the twenty-fifth day of March, Anno Domini one thousand nine hundred and one, is hereby repealed.

Approved—The 1st day of May, A. D. 1909.

EDWIN S. STUART.

No. 95.

AN ACT

Making it unlawful for any person, firm, or corporation, engaged in the manufacture or sale of commercial fertilizers, to use the word "bone" in connection with, or as part of the name of, any fertilizer, or any brand of the same, unless the phosphoric acid contained in such fertilizer shall be the product of pure animal bone; and providing a penalty for violation of the same.

Section 1. Be it enacted, &c., That it shall be unlawful for any person, firm, or corporation, engaged in the manufacture or sale of commercial fertilizers, to use the word "bone" in connection with, or as part of the name of, any fertilizer, or any brand of the same, unless the phosphoric acid contained in such fertilizer shall be the product of pure animal bone.

Section 2. Any person or persons violating the provisions of this act shall be deemed guilty of a misdemeanor, and, upon conviction thereof, shall pay a fine of fifty dollars for the first offense, and a fine of not less than one hundred dollars, nor more than two hundred dollars, for every subsequent offense; such fine or fines to be paid into the State Treasury, for the use of the Commonwealth. The Secretary of Agriculture shall, together with his deputies, agents, and assistants, be charged with the enforcement of this act.

Section 3. All magistrates, aldermen, and justices of the peace throughout this Commonwealth shall have jurisdiction to hear and determine actions arising from violations of the provisions of this act, and shall have authority to hold for court, or to impose the penalty hereby prescribed, subject to appeal, as the law shall direct.

Section 4. This act shall go into effect on the first day of January, Anno Domini nineteen hundred and ten.

Approved—The 23d day of April, A. D. 1909.

EDWIN S. STUART.

LETTER OF TRANSMITTAL.

State College, Pa., February 29, 1916.

Hon. Chas. E. Patton, *Secretary of Agriculture, Harrisburg, Pa.:*

Dear Sir: I have the honor to transmit herewith my report upon the analyses of the samples of commercial fertilizers received from official sampling agents during the fall season of 1915.

Very respectfully.

WM. FREAR.

FERTILIZERS ANALYSES AUGUST 1 TO DECEMBER 31, 1915.

Since August 1, 1915, there have been received from authorized sampling agents eight hundred and fifty-four fertilizer samples, of which three hundred seventy-one were subjected to analysis. Preference was given to those which have not been recently analyzed. In cases where two or more samples representing the same brand were received, equal portions from several samples were united, and the composite sample was subjected to analysis.

The samples analyzed group themselves as follows: 233 complete fertilizers, furnishing phosphoric acid, potash and nitrogen; 33 dissolved bones, furnishing phosphoric acid and nitrogen; 47 rock-and-potash fertilizers, furnishing phosphoric acid and potash; 39 acidulated rock phosphates, furnishing phosphoric acid only; 19 ground bones, furnishing phosphoric acid and nitrogen, and 7 miscellaneous samples, which group includes substances not properly classified under the foregoing heads.

The determinations to which a complete fertilizer is subjected are as follows: (1) Moisture, useful for the comparison of analyses, for indication of dry condition and fitness for drilling, and also of the conditions under which the fertilizer was kept in the warehouse. (2) Phosphoric acid—total and insoluble; the latter is that portion not soluble in water nor in warm ammonium citrate solution (a solution supposed to represent the action of plant roots upon the fertilizer), which is assumed to have little immediate food value. By difference, it is easy to compute the so-called "available" phosphoric acid. (3) Potash soluble in water—most of that present in green sand marl and crushed minerals, and even some of that present in vegetable materials such as cotton-seed meal, not being included because insoluble in water even after long boiling. (4) Nitrogen—This element is determined in such a manner as to ascertain its *total* quantity and also, the quality of the organic nitrogenous material present in the finished fertilizer. The fertilizer is washed thoroughly with water, which removes the nitrates, ammonium salts and almost all of the cyanamid nitrogen, and the soluble organic nitrogenous materials. These are not separately determined, but are grouped under the name *"water-soluble nitrogen."* The quantity of *water-insoluble nitrogen* is directly determined, and by difference between its amount and the total nitrogen, the water-soluble

nitrogen is calculated. Another portion of water-insoluble material* is treated with alkaline potassium permanganate, which attacks the nitrogenous organic substances present, and converts the more active portion into ammonia, which is distilled off, determined and its nitrogen calculated as *"active insoluble nitrogen."* The *"inactive insoluble nitrogen"* is then computed by subtracting the active insoluble from the total insoluble nitrogen. The term "available nitrogen" as used in this report, is the sum of the water-soluble and the active insoluble nitrogen. It is equivalent to the total nitrogen less the inactive insoluble nitrogen. In high grade organic nitrogenous materials, among which, from its behavior with this treatment, must be included horn meal, the percentage of inactive nitrogen in the insoluble nitrogen is usually under 40 per cent.; and the ratio of inactive to active insoluble nitrogen in such materials is usually less than 60 : 100. On the other hand, in the case of low-grade nitrogenous materials, the proportions of inactive nitrogen are much higher. The separations effected by these methods are therefore of great value in distinguishing whether the insoluble nitrogen is derived from high grade materials, or from low grade substances such as garbage tankage, peat, mora meal, unacidulated hair, leather, etc. There is, however, one fertilizer ingredient rapidly coming into use, whose presence may lead to erroneous conclusion, if judgment is based solely upon the facts ascertained by the foregoing method, namely, cyanamid. This substance contains from 13 to 16.5 per cent. of nitrogen, of which 12 to 14.7 per cent. is soluble in water, by the mode of treatment used in the alkaline permanganate method; and, of the 1.0 to 1.7 per cent. of water-insoluble nitrogen, less than one-fifth is active; so that the ratio of inactive to insoluble nitrogen is about 80 : 100. Owing to its tendency to reduce the availability of the phosphoric acid in acid phosphate mixtures, limited quantities only of this ingredient can be used advantageously in mixed fertilizers. Nevertheless, in cases where low grade sources of nitrogen are indicated by the foregoing method, it would be needful to determine, by supplementary tests, whether or not cyanamid may be present to account for the undue proportion of inactive, insoluble nitrogen, before concluding that such excess of inactive nitrogenous material is attributable to low-grade nitrogenous constituents. It is desirable to keep in mind at this point the fact also that certain widely used low-grade nitrogenous substances, such as garbage, tankage, peat and mora meal, are not included in the list of substances whose presence requires specific declaration under Section 4 of the Fertilizer act. 5) Chlorin—this determination is made to afford a basis for estimating the proportion of the potash that is present as chlorid

*This determination has been omitted in all cases where the insoluble nitrogen is only .2 per cent. or less.

or muriate, usually the cheaper source. The computation is made on the assumption that the chlorin present, unless in excess, has been introduced in the form of muriate of potash; but doubtless there are occasional exceptions to this rule. One part of chlorin combines with 1.326 parts of potash to form the pure muriate; knowing the chlorin, it is, therefore, easy to compute the potash equivalent thereto. (7) In the case of ground bone, the state of sub-division is determined by sifting through accurately made sieves; the cost of preparation and especially the promptness of action of bone in the soil depend very largely on the fineness of its particles, the finer being much more quickly useful to the plant.

The legislation of 1909 has made needful some additional tests. Section 4, of the Act of May 1, 1909, prohibits the sale of "pulverized leather, hair, ground hoof, horns, or wool waste, raw, steamed, roasted, or in any form, as a fertilizer, or as an ingredient of a fertilizer or manure, without an explicit statement of the fact." All nitrogenous fertilizers have, therefore, been submitted to a careful microscopic examination, at the time of preparing the sample for analysis, to detect the presence of the tissues characteristic of the several materials above named. The act of April 23, 1909, makes it unlawful to use the word "bone" in connection with, or as part of the name of any fertilizer, or any brand of the same, unless the phosphoric acid contained in such fertilizer shall be the product of pure animal bone. All fertilizers in whose name the word "bone" appears, were therefore examined by microscopic and chemical methods to determine, so far as possible with present knowledge, the nature of the ingredient or ingredients supplying the phosphoric acid. It is a fact, however, well known to fertilizer manufacturers and which should be equally understood by the consumer, that it is, in certain cases, practically impossible to determine the source of the phosphoric acid by an examination of the finished fertilizer. The microscope shows clearly the structure of raw bone, but does not make it possible to discriminate between thoroughly acidulated bone and acidulated rock. The ratio of nitrogen to phosphoric acid in a raw bone—and only such a bone as has not been deprived of any considerable proportion of its nitrogenous material by some manufacturing process can properly be called "pure animal bone"—is about 1 :8. In cases where the ratio of phosphoric acid to nitrogen exceeds 8, it is clear that part, at least, of the phosphoric acid has been supplied by something else than pure animal bone; but, inasmuch as nitrogen may have been introduced in some material other than bone and no longer detectible by the microscope, the presence of nitrogen and phosphoric acid in the proportions corresponding to those of bone is not proof positive that they have been supplied by bone. Finally,

the differences in the iron and silica content of bone and rock respectively, affords means of distinction useful in some cases; the usefulness of this distinction is limited, however, by the facts that kitchen bone frequently contains earthy impurities rich in iron and silica, and that earthy fillers can legally be used in fertilizers and are in fact quite often used therein both as "makeweights" and as "conditioners", or materials introduced to improve the drilling qualities of the goods. The fact that the phosphoric acid in bone and rock are identical in character is probably so well known as to require no detailed consideration in this connection.

The law having required the manufacturer to guarantee the amount of certain valuble ingredients present in any brand he may put upon the market, chemical analysis is employed to verify the guaranties stamped upon the fertilizer sacks. It has, therefore, been deemed desirable in this report to enter the guaranty filed by the manufacturer in the office of the Secretary of Agriculture, in such connection with the analytical results that the two may be compared. An unfortunate practice has grown up among manufacturers of so wording the guaranty that it seems to declare the presence in the goods of an amount of valuable constituent ranging from a certain minimum to a much higher maximum; thus, "Potash, 2 to 4 per cent." is a guaranty not infrequently given. In reality, the sole guaranty is for 2 per cent. The guaranteed amounts given for each brand in the following tables, are copied from the guaranties filed by the maker of the goods with the Secretary of Agriculture, the lowest figure given for any constituent being considered to be the amount guaranteed. For compactness and because no essentially important fact is suppressed thereby, the guaranties for soluble and reverted phosphoric acid have not been given separately, but are combined into a single guaranty for available phosphoric acid; in cases where the maker's guaranty does not specifically mention available phosphoric acid, the sum of the lowest figures given by him for soluble and reverted phosphoric acid is used. The law of 1879 allowed the maker to express his guaranty for nitrogen either in terms of that element or in terms of the ammonia equivalent thereto; since ammonia is composed of three parts of hydrogen and 14 parts of nitrogen, it is a very simple matter to calculate the amount of one, when the amount of the other is given; the amount of nitrogen multiplied by 1.214 will give the corresponding amount of ammonia, and the amount of ammonia multiplied by 0.824 will give the corresponding amount of nitrogen. In these tables, the expression is in terms of nitrogen. The laws of 1901 and 1909 abolished the alternative and required that the quantity shall be given in terms of nitrogen.

Many manufacturers, after complying with the terms of the law, insert additional items in their guaranties, often with the result of

misleading or confusing the buyer; the latter will do well to give heed to those items only that are given as the law requires and that are presented in these tables:

The cases of departure of goods from their guaranteed composition observed this season, including only those cases in which an asterisk has been affixed, were as follows:

Summary of Instances of Deficiency from Guaranty.

	Complete fertilizers.	Rock and potash.	Dissolved bone.	Dissolved rock.	Ground bone.
Deficient in four constituents,	0	0	0	0	0
Deficient in three constituents,	1	0	0	0	0
Deficient in two constituents,	14	3	2	1	1
Deficient in one constituent,	53	12	11	3	6
Total number of samples in which deficiencies occur,	68	15	13	4	7

The cases of deficiency noted during the past nine seasons in the composition of goods as compared with their guaranties, expressed in percentage of the total number of goods of each class analyzed, are as follows:

Percentage of Deficiency, 1911-1915.

	Spring, 1911.	Fall, 1911.	Spring, 1912.	Spring, 1913.	Fall, 1913.	Spring, 1914.	Fall, 1914.	Spring, 1915.	Fall, 1915.
Complete fertilizers,	45.1	46.9	39.0	32.3	36.0	33.1	27.1	21.3	29.1
Dissolved bone,	16.6	100.00	50.0	50.0	66.7	50.0	0.0	14.0	31.9
Rock and potash,	27.1	43.4	33.6	26.4	46.0	26.7	35.8	14.0	31.9
Dissolved rock,*	5.9	11.9	12.5	20.9	22.5	23.3	18.9	14.7	10.3
Ground bone,	47.8	20.0	29.2	25.0	22.2	47.8	31.8	12.5	36.3
All classes except miscellaneous,	38.7	46.0	36.0	30.4	35.0	32.0	28.0	19.6	29.0

A comparison of the average composition of all samples of complete fertilizers for which guaranties are recorded with the average of the corresponding guaranties, for several seasons past, including those of this season, follows:

Average Composition and Guaranty Compared.

	Average guaranty. Per cent.	Average guaranty. Per cent.
Fall, 1911.		
Phosphoric acid:		
Total,	9.59	9.09
Available,	8.26	7.87
Potash,	3.63	3.39
Nitrogen,	1.12	1.19
Spring, 1912.		
Phosphoric acid:		
Total,	9.51	8.82
Available,	8.09	7.78
Potash,	5.34	5.05
Nitrogen,	1.56	1.58
Fall, 1912.		
Phosphoric acid:		
Total,	9.90	9.07
Available,	8.28	7.83
Potash,	4.06	3.57
Nitrogen,	1.28	1.30
Spring, 1913.		
Phosphoric acid:		
Total,	9.71	8.92
Available,	8.11	7.37
Potash,	5.41	5.17
Nitrogen,	1.61	1.62
Fall, 1913.		
Phosphoric acid:		
Total,	9.86	9.09
Available,	8.06	7.83
Potash,	4.28	4.27
Nitrogen,	1.47	1.35
Spring, 1914.		
Phosphoric acid:		
Total,	9.31	8.71
Available,	8.06	7.65
Potash,	5.67	5.52
Nitrogen,	1.81	1.69
Fall, 1914.		
Phosphoric acid:		
Total,	9.84	9.25
Available,	8.41	8.00
Potash,	3.42	2.99
Nitrogen,	1.29	1.27
Spring, 1915.		
Phosphoric acid:		
Total,	10.56	9.34
Available,	9.05	8.00
Potash,	3.05	3.12
Nitrogen,	1.95	1.82
Fall, 1915.		
Phosphoric acid:		
Total,	10.41	9.21
Available,	9.11	7.89
Potash,	1.94	1.88
Nitrogen,	1.28	1.15

A summary of the analyses made this season may be presented as follows:

Summary of Analyses Made This Season.

	Complete fertilizers.	Rock and potash.	Dissolved bone.	Dissolved rock.	Ground bone.
Number of analyses,	238	48	32	39	21
Moisture, per cent.,	.....	.....	.....	.....	.....
Phosphoric acid:					
Total, per cent.,	10.41	12.07	12.35	16.02	23.03
Available,	9.11	11.08	10.32	15.13	.....
Insoluble,	1.30	.99	3.03	.89	.....
Potash,	1.94	1.87	.....	.....	.....
Nitrogen,	1.28	.....	1.36	.....	3.13
Mechanical Analyses of Bone:					
Fine,	.....	.....	.....	.....	52
Coarse,	.....	.....	.....	.....	48
Commercial valuation,	23.13	15.75	18.32	13.41	33.56
Average selling price,	21.79	16.89	21.52	13.83	32.79

The potash stringency due to the European war, has resulted in a further decrease in the amounts of potash salts used in mixed fertilizers.

The average potash percentages, commerical valuations and selling prices, for the brands analyzed in the Fall Season, of 1913, 1914 and 1915, are as follows:

	1913.		1914.		1915.	
	Complete.	Rock and potash.	Complete.	Rock and potash.	Complete.	Rock and potash.
Potash, per cent.,	4.28	4.70	3.42	3.50	1.94	1.87
Commercial valuations,	$24.36	$16.85	$22.64	$15.42	$23.13	$15.75
Average selling price,	$21.52	$16.25	$20.83	$15.21	$21.79	$16.89

There is a steady decrease in the brands on the market in which potash continues to be as part of the mixture. There is, however, no great increase in the prices asked for the potash used.

The remarkable increase in the number of brands appearing under the heading "Dissolved Bone" is doubtless due to the present potash scarcity. It will appear, upon an examination of the brand names of

this group, that many of these fertiliers are not sold as "dissolved bone" strictly. The grouping has been temporarily enlarged to include all fertilizers, not containing potash, that furnish available phosphoric acid and nitrogen.

It is of interest to note how closely the series of valuations based upon the wholesale price of raw materials in the principal markets during the most important buying season and upon certain average allowances for expenses and profits on the part of the mixer and jobber, coincides with the retail prices later ascertained. A comparison for several seasons past is given below:

Comparison of Selling Price and Valuation, 1911-1915.

	Selling price.	Valuation.	Excess of valuation over selling price.
Complete fertilizers:			
1911, Spring,	24.97	25.95	.98
Fall,	21.73	22.33	.61
1912, Spring,	27.64	27.24	—.40
1913, Spring,	25.08	26.44	1.36
Fall,	21.92	24.36	2.44
1914, Spring,	24.72	26.93	2.21
Fall,	20.83	22.64	1.81
1915, Spring,	25.50	28.45	2.95
Fall,	21.79	23.13	1.34
Dissolved bone:			
1911, Spring,	20.83	23.82	3.49
Fall,	24.88	21.51	—3.37
1912, Spring,	20.94	18.92	2.82
1913, Spring,	18.55	21.63	3.08
Fall,	24.75	24.26	—.49
1914, Spring,	26.25	27.28	1.03
Fall,	16.05	19.02	2.97
1915, Spring,	24.69	24.39	—.30
Fall,	21.52	18.32	—3.20
Rock and potash:			
1911, Spring,	17.05	15.99	—1.06
Fall,	16.25	16.07	—.18
1912, Spring,	18.17	16.26	—1.91
1913, Spring,	16.75	16.52	—.23
Fall,	16.25	16.85	.60
1914, Spring,	16.79	15.60	—1.19
Fall,	15.21	15.42	.21
1915, Spring,	16.90	16.47	—.43
Fall,	16.89	15.75	—1.14
Dissolved rock:			
1911, Spring,	15.83	14.26	—1.58
Fall,	14.00	13.78	.22
1912, Spring,	14.69	14.20	—.49
Fall,	13.51	13.70	.19
1914, Spring,	14.48	13.71	—.77
Fall,	13.78	13.97	.19
1915, Spring,	14.00	13.97	—.03
Fall,	13.83	13.41	—.42
Ground bone:			
1911, Spring,	30.93	31.47	.54
Fall,	31.17	31.18	.01
1912, Spring,	32.81	33.26	.45
1913, Spring,	33.86	32.50	—1.36
Fall,	31.12	32.63	1.51
1914, Spring,	31.43	30.15	—1.28
Fall,	32.20	33.45	1.25
1915, Spring,	33.44	30.26	—3.18
Fall,	32.79	33.56	.77

MATERIALS USED IN FERTILIZERS.

The sampling agents report no case of declaration under the requirements of Section 4 of the fertilizer law, nor has microscopic examination shown any decisive evidence of the presence in any fertilizer of more than accidental traces of any of the substances specified in that section.

On the other hand the results of the examination of the condition of the nitrogen in the complete fertiliers by the alkaline permanganate method affords much that is suggestive.

To keep the tables down to convenient size, the percentages of active insoluble nitrogen found have been omitted. They can be computed, however, from the figures given, by deducting from the total nitrogen the sum of the soluble and the inactive insoluble nitrogen. The ratio which the active insoluble bears to the inactive insoluble nitrogen being the principal indication the method as here used gives respecting the character of the organic nitrogenous ingredients of the fertilizer, the index letters, 'a', 'b' and 'c' have been affixed to the percentages of inactive insoluble nitrogen, to indicate the ratios between the active and inactive insoluble in the several samples. Cases in which the active constitutes three-fifths or more of the insoluble are marked 'a'; two-fifths to three-fifths, 'b', and less than two-fifths 'c'. The New England Stations use the terms 'good,' 'doubtful' and 'poor' for these respective classes of cases.

Of the 233 samples examined this season, 49 belong to class 'a', 159 to 'b', and 54 to 'c'.

If is needful to keep clearly in mind the meaning of the index 'c' as thus applied. Its presence does not suffice to indicate that the fertilizer contains no readily available nitrogen, but merely that part or all of the insoluble nitrogen is derived from low-grade sources, barring cases in which cyanamid is one of the fertilizer ingredients. These low grade materials may be such as are listed in Section 4 of the law, or others in common use, such as garbage tankage, peat or mora meal; and they may, if of animal origin, have had their nitrogenous material changed almost entirely to an available condition by 'wet mixing,' which has, however, little improving effect upon the nitrogenous constituents of garbage tankage and mora meal, and little more upon those of peat.

The use of such low-grade materials is either to make the fertilizer less likely to become sticky or lumpy, or to supply nitrogen from material that would otherwise be wholly thrown to waste. The use of 'conditioners' for the former purpose is, in itself, desirable rather than objectionable; but becomes obnoxious and unjust when the nitrogen they contain in unavailable form is made the basis of a charge at high rate to the buyer. The use also of low-grade and

therefore cheap nitrogen supplies whose nitrogen has, by chemical treatment, been made useful for plant-food, is laudable provided the materials are sold for what they are.

In cases where the inactive insoluble nitrogen forms a large fraction of the total nitrogen, and is marked by the index 'c,' and where also the guaranty does not exceed the available nitrogen by an amount equal to most of the 'inactive,' and the selling price, corrected for freight difference, is not considerably less than that asked for fertilizers of like general composition but supplying nitrogen derived from high-grade goods such as bear the index "a' or even 'b' there is reason to believe that the buyer is being subjected to unfair treatment.

Section 1 of the Fertilizer Law of 1909 requires that the guaranty for a fertilizer shall state 'the percentage such fertilizer contains of nitrogen in an available form.' It is, however, by no means clear that the term 'available,' as used in the law, means precisely the same thing that is meant by the term when used to designate the sum of water soluble and active insoluble nitrogen, as determined by the present method. For some nitrogenous fertilizer ingredients always regarded as of high grade, such as dried blood, meat tankage, and cottonseed meal, contain a considerable fraction of inactive insoluble nitrogen when examined by this method. Until further notice, therefore, the law will not be construed to require that the amount of nitrogen guaranteed shall not exceed that present in a form that will appear as 'available' by the alkaline permanganate method now in use.

In many of this season's samples, however, the quantity of nitrogen thus available is found equal to the percentage guaranteed. On the average, the 'available' nitrogen found was 1.49 per cent., the total, 1.81 that guaranteed, 1.69 per cent.

ORGANIZATION OF THE WORK.

The work of the season has been performed under my direction as follows:

The nitrogen determinations, total, by G. C. Given, Ph.D.; available, by A. B. Long, B. S.; the total phosphoric acid and moisture, by G. J. Kuhlman, B. S.; the insoluble phosphoric acid, by F. J. Holben, B. S., and C. A. Kern; the potash and chlorin, by E. S. Erb, M. S.; the computations M. Verna Bryce and others. Dr. G. C. Given had charge of the reception and preparation of samples, and immediate supervision of analytical work. To all these assistants the writer is indebted for loyal aid.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.	Moisture in 00 pounds.
	THE AMERICAN AGRICULTURAL CHEMICAL CO., NEW YORK.		
73	†Dead Shot Phosphate,	Greencastle Elevator Co., Greencastle.	
11		H. N. Orr, Tyrone,	7.53
186		N. T. Sassaman, Ottsville,	
758	Grain Grower No. 1,	N. R. Yost, Myerstown,	8.30
177	†Grain Grower No. 3,	John A. Weisel, Hagersville,	
525		Hartwell & Phillips, New Wilmington.	6.67
598	Canton Chem. Special Resurgam Guano,	Irvin E. Mangel, Mahanoy City,	7.60
510	Bradley's Special B. D. Guano,	Geo. Off & Sons, Evans City,	4.25
384	†Bradley's Niagara Phosphate,	A. W. Sandt, Martins Creek,	4.66
509		Geo. Off & Sons, Evans City,	
329	Canton Chemical Baker's Fish Guano,	J. O. Walliz, Danville, R. D. No. 6,	9.39
441	Canton Chemical Harrow Brand Crop Grower.	Mark Hiltebeitel, Green Lane,	9.58
14	Canton Chemical Baker's Standard H. G. Guano.	W. B. Winey, Middleburg,	10.76
612	Crocker's Complete Manure	Crowl & Greenleaf, Quarryville,	8.48
175	†Revised High Grade Special,	John A. Weisel, Hagersville,	8.90
230		Jerome Herb, Pitman,	
611	Crocker's New Rival Fertilizer,	Crowl & Greenleaf, Quarryville,	9.79
176	†Crocker's Nobsque Guano,	John A. Weisel, Hagersville,	6.63
515		E. E. Tribbey, West Middlesex,	
645	†Great Eastern Wheat Special,	C. E. Rauscher, Blossburg,	7.25
822		Wm. J. Johnston, Sinking Spring,	
729		Wm. T. Hoover, Port Matilda,	
408	†Detrick's Imperial Compound,	Levi Berey, Somerset,	8.84
749		Geo. Hocker, Union Deposit,	
507	†Detrick's Paragon Ammoniated Phosphate and potash.	Levi Berkey, Somerset,	9.88
750		Geo. Hocker, Union Deposit,	
544	Detrick's Royal Crop Grower,	A. M. Grove & Co., Muddy Creek Forks.	10.17
545	Lazaretto Crop Grower,	A. M. Grove & Co., Muddy Creek Forks.	9.57
227	†Marylaud Ammoniated Phosphate,	Samuel Heim, Pitman,	
246		Paxton Flour & Feed Co., Bowmansdale.	10.30
812	Maryland O. K. Ammoniated Fertilizer,	G. E. Kemp, Bally,	10.15
601	Milsom's Bison Brand,	D. R. Stein, Orwigsburg,	11.07
854	Milcom's Special Buffalo Guano,	J. K. Diffendeffer, York,	11.43
529	Milsom's Eric King Fertilizer,	Graham Bros., Darlington,	5.50
602	Moro Phillip's C. & G. Complete Fertilizer.	James Dreher, Orwigsburg,	9.12
266	†Moro Phillip's Farmers' Phosphate,	Nickles & Stuart, Shippensburg,	
248		Levi Donkle, Meyerstown, R. D. No. 5.	9.20
430		J. R. Diffenderfer, York,	
556	†Moro Phillip's Pure Phuine,	W. M. Woods, Carlisle, R. D. No. 8,	
429		I. J. Tustin, Phoenixville,	9.30
742		Hegins Grange No. 1242, A. A. Schwaln, Sec., Hegins.	
200	Northwestern Special Shawnee Phosphate,	Elmer Carl, Coopersburg,	11.34
357	Northwestern Success Phosphate,	Francis Baker, Everett,	8.26
343	Packers' Union Special Universal Fertilizer.	Wm. I. Brown, Airydale,	8.99
201	Quimnipiac Mohawk Fertilizer,	Elmer Carl, Coopersburg,	8.39
814	Read's All Crop Fertilizer,	Amos Pennepacker, Bally,	10.57
635	†Read's Special Wheat and Rye,	Billings & Keldar, New Albany,	
380		Robert A. Daubach, Nazareth,	9.07
815		Amos Pennepacker, Bally,	
816	Read's Leader Fertilizer,	Amos Pennepacker, Bally,	9.42
381	†Read's Pioneer Fertilizer,	Robert A. Daubach, Nazareth,	8.61
817		Amos Pennepacker, Bally,	
746	Reese's Ammoniated Phosphate Mixture,	Jacob Yoder, Hegins,	10.40
419	†Reese's Half and Half,	Wm. Hall, Danboro,	9.20
737		A. G. Hontz, Meyerstown, D. No. 3,	
144	Reese's Harvest Queen,	J. F. Goodling, Loganville,	10.11
454	Susquehanna Animal Phosphate,	H. P. Passmore & Bro., Oxford,	10.60
16	†Susquehanna Crop Grower,	C. H. Kingler, Middleburg, R. D.,	8.61
713		The J. N. Getz Co., Lock Haven,	
439	†Susquehanna XXV Phosphate,	A. H. Keeley & Sons, Schwenksville.	9.52
712		The J. N. Getz Co., Lock Haven,	

†Composite sample.
*Coustituent falls below guaranty.

FERTILIZERS.

Phosphoric Acid in 100 Pounds.					Potash in 100 Pounds.				Nitrogen in 100 Pounds.					Computed commercial value of 2,000 lbs. at Dept. rating.	Selling price of 2,000 lbs. at point of selection.
Available.			Total.				Total.					Total.			
Found.	Guaranteed.	Insoluble.	Found.	Guaranteed.	Present as Muriate.	Present as Sulphate.	Found.	Guaranteed.	Water Soluble.	Available.	Inactive Insoluble.	Found.	Guaranteed.		
8.32	8.00	.83	9.15	9.00	1.94	.....	1.94	2.00	.34	.43	b.13	.56	.41	16.58	{ 19.00 19.50 .....
9.59	9.00	.97	10.56	10.00	.88	.....	.88	1.00	.43	.61	a.07	*.68	.82	18.52	20.00
9.16	9.00	1.37	10.53	10.00	.98	.....	.98	1.00	1.17	1.42	b.23	1.65	1.65	22.89	{ 23.00 26.00
8.26	8.00	.90	9.16	9.00	2.90	.....	2.90	3.00	.62	.91	a.16	1.07	.82	22.96	25.00
*7.61	8.00	1.75	9.36	9.00	2.72	.....	*2.72	3.00	.68	.86	a.13	.99	.82	22.15	26.00
7.02	7.00	1.47	8.49	8.00	1.08	.....	1.08	1.00	.52	.75	b.19	.94	.82	18.01	{ 17.25 22.00
*7.72	8.00	1.59	9.31	9.00	2.18	.....	2.18	2.00	1.14	1.45	b.22	1.67	1.65	24.11	24.00
8.10	8.00	1.21	9.31	9.00	1.10	.....	1.10	1.00	.72	.88	b.12	1.00	.82	19.08	23.00
8.63	8.00	1.46	10.09	9.00	3.34	.....	3.34	3.00	1.45	1.73	b.23	1.96	2.06	28.62	28.00
8.37	8.00	.87	9.24	9.00	3.04	.....	3.04	3.00	.50	.69	b.16	.85	.82	22.47	21.00
8.05	8.00	1.23	9.28	9.00	2.83	.....	2.83	3.00	1.00	1.28	b.25	1.53	1.65	25.14	{ 26.25 25.00
8.59	9.00	2.12	10.71	10.00	1.92	.....	1.92	2.00	.82	.98	b.23	1.21	1.23	22.50	21.00
8.34	8.00	1.28	9.62	9.00	2.04	.....	2.04	2.00	.84	1.14	a.20	1.34	1.03	22.98	{ 22.00 23.00
8.07	8.00	1.66	9.73	9.00	2.04	.....	2.04	2.00	1.07	1.45	a.24	1.69	1.65	24.43	{ 27.00 24.00
8.16	8.00	1.12	9.28	9.00	2.70	.....	2.70	2.00	.56	.68	b.18	.86	.82	21.69	{ 24.00 22.00 .....
7.53	7.00	1.30	8.83	8.00	1.26	.....	1.26	1.00	.58	.74	b.17	.91	.82	18.48	{ 19.00 .....
7.93	8.00	1.77	9.70	9.00	1.94	.....	1.94	2.00	1.25	1.49	b.28	1.77	1.65	24.36	23.00
8.16	8.00	1.50	9.66	9.00	2.02	.....	2.02	2.00	1.12	1.36	b.28	1.64	1.65	24.06	23.00
8.47	8.00	1.28	9.75	9.00	3.04	.....	3.04	3.00	1.08	1.33	b.25	1.58	1.65	26.16	{ 26.00 26.00
7.92	8.00	1.13	9.05	9.00	1.74	.....	*1.74	2.00	.65	.81	b.12	.93	.82	19.97	20.50
10.08	10.00	1.05	11.13	11.00	1.95	.....	1.95	2.00	1.07	1.40	b.25	1.65	1.65	29.58	24.00
8.69	8.00	1.61	10.30	9.00	3.08	.....	3.08	3.00	.66	.77	b.14	.91	.82	23.43	.....
*6.67	7.00	2.00	8.67	8.00	.94	.....	.94	1.00	.40	.61	b.20	.81	.82	16.94	22.00
7.99	8.00	1.38	9.37	9.00	1.68	.....	*1.68	2.00	.73	.87	b.14	1.01	.82	20.25	20.75
7.28	7.00	1.08	8.36	8.00	.99	.....	.99	1.00	.57	.71	b.20	.97	.82	17.60	{ 18.00 20.25 .....
8.51	8.00	1.24	9.75	9.00	2.86	.....	2.86	3.00	1.01	1.25	b.29	1.54	1.65	25.55	{ 25.00 27.00 24.00
8.65	8.00	1.03	9.68	9.00	2.91	.....	2.91	3.00	1.04	1.42	a.24	1.66	1.65	26.13	25.00
7.22	7.00	.99	8.21	8.00	1.10	.....	1.10	1.00	.45	.62	b.24	.86	.82	17.48	18.00
8.80	8.00	.98	9.78	9.00	2.08	.....	2.08	2.00	.52	.66	b.20	.86	.82	20.96	18.50
8.52	7.00	.70	9.22	8.00	1.28	.....	1.28	1.00	.66	.88	a.12	1.00	.82	19.60	18.00
9.25	9.00	1.31	10.56	10.00	2.59	.....	*2.59	3.00	.53	.65	b.08	.73	.82	22.08	23.50
8.45	8.00	1.23	9.68	9.00	3.33	.....	3.33	3.00	1.02	1.28	b.33	1.61	1.65	26.74	{ 25.00 25.25 25.75
7.19	7.00	1.11	8.30	8.00	.90	.....	.90	1.00	.59	.76	b.16	.92	.82	17.14	18.50
8.12	8.00	1.31	9.43	9.00	2.38	.....	2.38	2.00	.63	.80	b.15	.95	.82	21.59	{ 18.50 21.00
9.42	9.00	1.53	10.95	10.00	2.73	.....	*2.73	3.00	.59	.76	b.13	.89	.82	23.32	.....
7.37	7.00	1.11	8.48	8.00	1.58	.....	1.58	1.00	.69	.80	b.18	.93	.82	19.41	{ 20.00 20.00
8.26	8.00	1.78	10.14	9.00	2.40	.....	2.40	2.00	.95	1.14	b.19	1.32	1.03	23.83	20.50
9.19	9.00	2.41	11.60	10.00	2.34	.....	2.34	2.00	1.09	1.50	a.27	1.77	1.65	26.61	.....
7.34	7.00	1.21	8.55	8.00	1.06	.....	1.06	1.00	.61	.75	b.21	96	.82	18.07	{ 19.00 21.00
7.98	8.00	1.36	9.34	9.00	.99	.....	.99	1.00	.62	.73	b.17	90	.82	18.39	{ 23.00 24.00

a b c characters indicating the proportion of insoluble nitrogen that is inactive: a=two-fifths or less; b=two-fifths to three-fifths; c=three-fifths or more.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.	Moisture in 100 pounds.
344	Wheeler's Royal Wheat Grower, ...	L. P. Garver, Shirleysburg, ...	10.50
318	William' & Clark Royal Phosphate, ...	Zehner Bros., Bloomsburg, ...	9.24
533	Zell's Ammoniated Superphosphate, ...	J. F. Goodling, Loganville, ...	9.61
534	Zell's Little Treasure, ...	J. R. Shaffer, Glen Rock, R. D. No. 1.	10.01
	AMERICAN FERTILIZER CO., BALTIMORE, MD.		
387	Ammoniated Crop Compound, ...	N. H. Blough, Davidsville, ...	8.42
214	†American Eagle Crop Grower, ...	S. K. Savidge, Valley View, ...	9.83
848		Quarryville Farmers' Asso., Quarryville.	
629	American Eagle Guano, ...	Lenox Grange, Hopbottom, ...	9.04
113	†American Eagle Truck and Vegetable Manure.	G. C. Myers, Gardners, ...	8.11
206		S. K. Savidge, Valley View, ...	
538	†American Emergency Special Compound Guano.	Bert Hoff, Spring Grove, R. D.,..	8.16
606		Jones Eaverson, Christiana, ...	
207	American Grain and Grass Grower, ...	S. K. Savidge, Valley View, ...	12.16
130	†American High Grade Special Compound Guano.	H. W. Burg,, East Prospect, ...	8.82
215		S. K. Savidge, Valley View, ...	
265		S. K. Savidge, Valley View, ...	
112	†American Special Compound Guano, ...	G. C. Myers, Gardners, ...	8.76
607		Jones Eaverson, Christiana, ...	
	ARMOUR FERTILIZER WORKS, INC., BALTIMORE, MD.		
213	†Farmers' Choice, ...	C. G. Updegrave, Sacramento, ...	5.85
59		Grove Stove Co., West Milton, ...	
241		M. L. Bachman, Lebanon, ...	
210	Grain Grower, ...	C. G. Updegrave, Sacramento, ...	7.73
	ATLANTIC FERTILIZER WORKS, BALTIMORE, MD.		
644	Atlantic Arrow Brand Special, ...	Chas. McDowell, Mansfield, ...	7.96
643	Atlantic G. G. G. Golden Grain Grower,..	Chas. McDowell, Mansfield, ...	**9.54**
	BALTIMORE FERTILIZER CO., BALTIMORE, MD.		
287	Honest Harvest, ...	C. W. Otto, Carlisle, R. D. No. 6,	6.97
119	Old Honesty, ...	J. N. Lightner, Gettysburg, ...	6.63
	BAUGH & SONS CO., PHILADELPHIA, PA.		
162	†Baugh's Double Eagle $25 Phosphate, ...	Ed. Brinton & Sons, West Chester,	8.19
82		Cook Grain, Feed & Fert. Co., Dillsburg.	
289		Adolph Bolltinger, Danville, ...	
647	Export Bone with Potash, ...	J. Harvey Miller, Ligonier, ...	5.97
155	†Baugh's General Crop Grower for all Crops.	H. A. Mendenhall, Toughkenamon,	8.53
100		M. J. Sheffer, Hanover, ...	
280		S. E. Shenk, Newville, ...	
161	†Baugh's Wheat Fertilizer for Wheat and Grass.	Ed. Brinton & Sons, West Chester,	7.30
6		Robt. D. Forman, Centre Hall, ...	
470		I. J. Farabaugh, Carrolltown, ...	
	ELIAS BRUBACHER, RICHLAND, PA.		
255	Wheat and Grass Special, ...	Elias S. Brubacher, Richland, ...	9.90
	BOWKER FERTLIZER CO., BOSTON AND NEW YORK.		
752	Bowker's Ammoniated O. I. O. Phosphate,	I. W. Firestone & Sons, Richland,..	9.05
444	Bowker's Hill and Drill Phosphate, ...	L. K. Beers, Perkasie, ...	9.67
275	†Bowker's Sure Crop Phosphate, ...	Jno. K. Beidler & Son, Oakville,	10.37
111		G. C. Myers, Gardners, ...	
443		L. K. Beers, Perkasie, ...	
	CEN. CHEM. CO., THOMAS FERTILIZER WORKS, HAGERSTOWN, MD.		
806	C. C. C. Farmers' Century Brand, ...	C. L. Bemheilsel & Co., New Kensington.	8 88
737	†C. C. C. Fish Bone Compound, ...	Jno. W. Bathgate, State College, ..	8.88
805		C. L. Bernheilsel & Co., New Kensington.	

†Composite sample.
*Constituent falls below guaranty

LIZERS—Continued

Phosphoric Acid in 100 Pounds.					Potash in 100 Pounds.				Nitrogen in 100 Pounds.					Computed commercial value of 2,000 lbs. at Dept. rating.	Selling price of 2,000 lbs. at point of selection.
Available.			Total.				Total.					Total.			
Found.	Guaranteed.	Insoluble.	Found.	Guaranteed.	Present as Muriate.	Present as Sulphate.	Found.	Guaranteed.	Water Soluble.	Available.	Inactive Insoluble.	Found.	Guaranteed.		
9.15	8.00	1.85	11.00	9.00	1.96	.....	1.96	2.00	.74	.87	b.17	1.04	.82	22.29	20.40
8.99	8.00	1.28	10.27	9.00	2.08	.....	2.08	2.00	.62	.95	b.33	1.28	1.03	23.33	24.00
7.88	8.00	1.57	9.45	9.00	2.36	.....	2.36	2.00	1.15	1.42	b.24	1.66	1.65	24.58	22.00
7.28	7.00	1.31	8.59	8.00	1.09	.....	1.04	1.00	.60	.79	b.21	1.00	.82	18.31	17.00
8.47	8.00	2.60	11.07	9.00	1.86	.....	1.86	2.00	.48	.61	c.21	.82	.82	20.68	20.50
8.04	8.00	.83	8.87	9.00	2.34	.....	2.34	2.00	1.20	1.38	a.11	1.49	1.65	23.67	23.00 22.60
7.88	8.00	1.00	8.88	9.00	3.51	.....	3.51	3.00	3.15	3.43	b.26	3.69	2.47	36.01	25.00
8.89	8.00	.92	9.81	9.00	2.87	.....	2.87	3.00	2.38	2.66	b.30	*2.96	3.29	32.12	31.70
7.56	7.00	1.49	9.05	8.00	.96	.....	.96	1.00	.39	.....	.....	.52	.41	13.97	31.00 ..... 18.50
9.63	9.00	1.54	11.22	10.00	2.80	.....	*2.80	3.00	.60	.69	c.17	.86	.82	23.42	22.75
7.36	7.00	1.11	8.47	8.00	3.12	.....	3.12	3.00	.54	.66	c.19	.85	.82	21.74	22.00 21.50
7.37	7.00	1.67	9.04	8.00	3.10	.....	3.10	3.00	.37	.....	.....	.51	.41	20.46	21.00 20.25 21.50
9.46	9.00	.66	10.12	9.50	1.80	.97	*2.77	3.00	.38	.56	c.28	.84	.82	22.94	22.50 22.00 24.00
8.90	8.00	1.19	10.09	8.50	1.65	.....	*1.65	2.00	.73	1.15	b.46	1.61	1.65	23.66	23.00
8.25	8.00	.76	9.01	.....	1.76	.....	1.76	1.00	.85	.94	c.26	1.20	.82	21.24	22.00
*8.79	9.00	.86	9.65	.....	2.10	.....	2.10	1.00	1.24	1.41	c.28	1.69	1.65	24.76	24.00
8.95	9.00	.54	9.49	10.00	1.20	.23	1.43	....	.62	.82	b.29	1.11	1.00	20.75	20.00
8.09	8.00	.59	8.68	9.00	.72	.....	.72	.50	.52	.69	b.21	.90	.80	17.40	17.00
9.22	8.50	1.53	10.75	.....	1.30	.....	1.30	1.00	.78	1.03	c.54	1.57	1.65	23.15	24.00 22.00 24.50
14.12	.....	1.50	15.62	11.00	2.18	.....	2.18	2.00	.43	.98	b.59	1.57	1.65	29.37	32.00
8.87	8.00	1.28	10.15	.....	1.40	.....	1.40	1.00	.46	.61	c.31	.92	.82	19.65	19.00 18.50 18.00
10.30	10.00	2.45	12.75	.....	1.50	.....	1.50	1.00	.79	1.12	b.48	1.60	1.65	25.21	26.00 ..... 25.00
8.29	8.00	2.65	10.94	9.00	2.24	.....	2.24	2.00	.57	.72	b.22	.94	.82	22.07	20.50
*9.79	10.00	1.25	11.04	11.00	.56	.....	.56	....	.69	.91	a.12	1.03	.62	19.74	.....
9.18	9.00	.96	10.14	10.00	1.96	.....	1.96	2.00	1.59	2.12	a.36	2.48	2.47	28.52	.....
9.12	9.00	1.47	10.59	10.00	1.92	.....	1.92	2.00	.74	.87	b.16	1.03	.82	21.99	21.00 ....
9.96	8.00	.45	10.41	.....	1.90	.....	1.90	2.00	.44	.53	c.21	.74	.82	20.86	20.00
12.05	12.00	.86	12.91	.....	.53	.....	.53	....	.58	.81	b.27	1.08	1.04	21.80	..... 20.75

a b c characters indicating the proportion of insoluble nitrogen that is inactive: a=two-fifths or less; b=two-fifths to three-fifths; c=three-fifths or more.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.	Moisture in 100 pounds.
240	†C. C. C. Fish Bone and Potash,	Edgar Hepler, Hepler,	
49		John H. Wingert, Lewisburg,	9.97
330		Isaac Adams, Danville, R. D. No. 6,	
581	C. C. C. Golden Sheaf,	Edgar Hepler, Hepler,	6.09
673	C. C. C. Keystone,	Clayton Smith, Bedford,	9.16
	CHESAPEAKE CHEMICAL CO., BALTIMORE, MD.		
358	†C. C. C. Co's National Crop Grower,	J. S. Hershberger, Everett,	9.87
787		A. H. Ulsh, Millerstown,	
	THE COE MORTIMER CO., NEW YORK.		
	E. Frank Coe's Columbian Corn and Potato Special Fertilizer.	A. T. Brown, Nescopeck,	9.45
473	†E. Frank Coe's Grain Grower No. 1,	George New, Blairsville,	
218		Chas. Schoffstall, Valley View,	9.54
319		J. W. Showalter, New Holland,	
217	E. Frank Coe's Penna. No. 1 Grain Special.	Chas. Schoffstall, Valley View,	8.67
434	†E. Frank Coe's Universal Fertilizer,	John W. Root, Kimberton,	
392		J. M. Croyle & Son, Boswell, R. D. No. 1.	9.29
565		Adam Schofstal, Gratz,	
433	†E. Frank Coe's Western New Yorker, Special.	John W. Root, Kimberton,	
221		Chas. Schoffstall, Valley View,	9.71
493		Peter George, Palmerton, R. No. 1,	
12	†E. Frank Coe's Wheat and Buckwheat, Special.	Wm. Elsesser, Cocolamas,	8.23
483		E. A. Berthalomew, Scioata,	
	COLUMBIA GUANO CO., BALTIMORE, MD.		
313	Columbian Fish Phosphate and Potash,	M. P. Whitenight, Bloomsburg,	8.29
312	Columbian Olimpie Guano,	M. P. Whitenight, Bloomsburg,	6.40
328	†Columbian Special Grange Formula,	D. W. & H. W. Grove, Catawissa,	
314		M. P. Whitenight, Bloomsburg,	6.91
396		Chas. Schumacher, Friedens,	
	CONSUMERS CHEMICAL CORPORATION, THE, NEW YORK.		
183	†Consumers' All Crop Compound,	J. O. Snyder, Pleasant Valley,	
36		J. D. Greybill & Son, Belleville,	7.00
297		Gheen, Spigelmyer & Phleger, Antes Fort.	
195	Consumers' Complete Compound,	W. H. Hoffman, New Tripoli,	7.77
193	†Consumers' Pure Sure Plant Food,	W. H. Hoffman, New Tripoli,	
37		J. D. Greybill & Son, Belleville,	5.26
632		R. S. Hardie, Mehoopany,	
194	Consumers' XXX Fish and Potash,	W. H. Hoffman, New Tripoli,	9.81
	HENRY COPE & CO., LINCOLN UNIVERSITY, PA.		
453	Pure Bone Phosphate,	Lyburn Whitaker, Oxford,	11.06
452	Wheat Grower and Complete Manure,	Lyburn Whitaker, Oxford,	12.12
	JOSIAH COPE & CO., BALTIMORE, MD.		
604	†Wheat and Grass Special,	Jones Eaverson, Christiana,	9.96
676		R. C. Smith, Point,	
	JAMES G. DOWNWARD CO., THE, COATESVILLE, PA.		
747	†All Crop Fertilizer,	A. G. Lehman, Palmyra, R. No. 2,	4.28
748		Jacob L. Landis, Union Deposit,	
418	†Ammoniated Phosphate,	J. W. Underwood, Ambler,	5.26
579		A. G. Lehman, Palmyra, R. No. 2,	
	WALLACE DUNGAN, DOYLESTOWN, PA.		
445	Bepple Hill Home-Made Animal Mixture,	Wallace Dungan, Doylestown,	12.05

†Composite sample.
*Constituent falls below guaranty.

LIZERS—Continued.

Phosphoric Acid in 100 Pounds.					Potash in 100 Pounds.				Nitrogen in 100 Pounds.					Computed commercial value of 2,000 lbs. at Dept. rating.	Selling price of 2,000 lbs. at point of selection.
Available.			Total.				Total.					Total.			
Found.	Guaranteed.	Insoluble.	Found.	Guaranteed.	Present as Muriate.	Present as Sulphate.	Found.	Guaranteed.	Water Soluble.	Available.	Inactive Insoluble.	Found.	Guaranteed.		
11.25	7.00	.70	11.95	.....	1.17	.....	*1.17	3.00	.54	.73	c.33	1.06	1.04	22.01	23.00 21.00 **20.00**
*7.54	8.00	1.48	9.02	.....	.83	.....	.83	1.00	.44	.61	b.23	.84	.82	17.53	19.00
*9.49	10.00	1.11	10.60	.....	1.20	.....	1.20	1.00	.60	.76	b.21	.97	.82	20.26	.....
8.70	8.00	1.17	9.87	8.75	2.04	.....	2.04	2.00	1.24	1.42	b.20	1.62	1.64	24.27	18.00 **24.00**
9.02	9.00	1.46	10.48	10.00	1.94	.....	1.94	2.00	.67	.91	b.31	1.22	1.23	22.70	25.00
8.96	9.00	1.27	10.23	10.00	1.75	.....	1.75	1.00	.65	.80	b.16	.96	.82	20.96	23.50 18.25 **20.50**
7.97	8.00	1.30	9.27	9.00	2.62	.....	*2.62	3.00	.71	.86	b.12	.98	.82	22.04	**23.00**
8.35	8.00	1.02	9.37	9.00	2.80	.....	*2.80	3.00	1.13	1.38	b.28	1.66	1.65	25.63	**27.00** 25.65 .....
†8.11	9.00	1.59	*9.70	10.00	2.28	.....	*2.28	3.00	.78	.90	b.18	1.08	.82	22.17	25.00 **23.00** .....
*6.22	8.00	1.09	*7.31	9.00	2.06	.....	2.06	2.00	.38	.....	.....	.56	.41	17.20	..... 20.00
*7.80	8.00	1.48	9.28	8.50	2.92	.....	2.92	3.00	1.00	1.45	a.19	1.64	1.65	25.63	**26.95**
8.28	8.00	1.54	9.82	8.50	2.81	.....	2.81	3.00	1.40	1.86	a.24	2.10	2.66	27.91	**28.35**
8.90	9.00	1.85	10.75	9.50	2.55	.....	*2.55	3.00	.66	.87	a.13	1.00	.82	23.07	25.00 24.85 **23.00**
10.01	9.00	.71	10.72	10.00	2.13	.81	2.94	3.00	.85	.98	a.08	1.06	.82	24.74	22.00 24.50 **24.00**
8.45	8.00	1.16	9.61	9.00	1.80	.41	2.21	2.00	1.08	1.44	a.25	1.69	1.65	24.90	22.00
9.03	8.00	.88	9.91	9.00	.99	.....	.99	1.00	.59	.80	b.15	.95	.82	19.33	18.50 20.00 **19.00**
8.66	8.00	1.03	9.69	9.00	1.47	.60	2.07	2.00	1.16	1.56	a.19	1.75	1.65	25.00	**23.00**
10.63	8.00	.87	11.50	10.00	.95	.....	.95	1.00	.52	1.05	a.25	*1.30	1.64	22.27	**29.00**
10.78	7.00	.87	11.65	9.00	2.55	.....	2.55	2.00	1.23	1.35	c.26	1.61	1.21	27.03	**24.00**
8.09	8.00	1.38	9.47	9.00	1.48	.....	1.48	1.00	.68	.82	b.16	.98	.82	19.99	20.00 **17.00**
†9.43	10.00	.77	*10.20	11.00	.97	.....	.97	1.00	.04	.21	c.28	.49	.41	15.04	18.00 .....
10.96	11.00	1.50	12.46	12.00	.62	.....	*.62	1.00	.23	.50	c.44	.94	.82	20.53	24.00 **22.00**
†8.40	9.00	3.04	*11.44	12.00	3.38	.....	*3.38	5.00	1.39	2.04	b.45	*2.49	3.30	31.76	**34.00**

a b c characters indicating the proportion of insoluble nitrogen that is inactive: a=two-fifths or less; b=two-fifths to three-fifths; c=three-fifths or more.

Sample number.	Manufaeturer and Brand.	From Whom Sample Was Taken.	Moisture in 100 pounds.
	EUREKA CHEMICAL CO., BALTIMORE, MD.		
92	†Eureka Complete Compound,	S. P. Miller, Littlestown,	4.28
46		Geo. W. Zimmerman, Mifflinburg, R. D.	
96	†Eureka Farmers' Favorite,	N. E. Gobrecht & Bro., Hanover,	8.62
72		D. B. Dumm, Thompsontown,	
655		C. S. Funk, New Stanton,	
625	Eureka Grain and Grass,	Peter Boyer, Fleetwood, R. No. 1,	9.03
91	Eureka No. 1 Grain and Grass,	S. P. Miller, Littlestown,	4.71
	EUREKA FERTILIZER CO. OF LANCASTER, PA.		
97	Grain and Grass,	M. E. Gobrecht &Bro., Hanover,	8.57
	FARMERS' FERTILIZER WORKS, ELIZABETHTOWN, PA.		
35	†Farmers' Club Brand,	J. D. Greybill & Son, Belleville,	7.85
242		B. F. Horting, Newport,	
243		B. F. Horting, Newport,	
34	†Grain and Grass Special,	J. D. Greybill & Son, Belleville,	8.54
569		John Sheetz, Elizabethville,	
779	Crop Grower,	B. F. Horting, Newport,	8.12
553	†Farmers' Golden Sheaf,	Eli Ginerich, York, R. D.,	7.51
244		B. F. Horting, Newport,	
567		John Sheetz, Elizabethville,	
552	†Farmers' I. X. L.,	Eli Ginerich, York, R. D.,	9.02
568		John Sheetz, Elizabethville,	
843	†Special Compound,	H. H. Martin, Manheim,	9.12
566		John Sheetz, Elizabethville,	
842		H. H. Martin, Manheim,	
	W. S. FARMER & CO., BALTIMORE, MD.		
99	Harvest Queen,	M. J. Sheffer, Hanover,	12.02
	MAHLON FRETZ, SELLERSVILLE, PA.		
170	Fretz's Standard Phosphate,	Mahlon Rickert, Sellersville,	6.53
	JOS R. GAWTHROP, KENNETT SQUARE, PA.		
158	Champion Fertilizer for Wheat and Grass,	Jos. K. Gauthrop, Kennett Square,	6.96
	GRIFFITH & BOYD CO'S, BALTIMORE, MD.		
810	Ammoniated Bone Phosphate,	Harvey Webner, Hamburg, R. No. 1,	9.15
563	Animal Bone with Potash,	J. J. Coleman, Gratz,	10.40
145	†Fish Bone and Potash,	S. K. Chambers & Bro., Elkview,	8.16
134		Geo. C. Linebaugh, Dover, R. No. 4,	
306		E. A. Slagle, Paxinos,	
551	Harvest Queen Phosphate,	J. L. Meyers, Loganville,	9.25
133	†Peerless Fertilizer,	Geo. C. Linebaugh, Dover, R. No. 4,	6.94
27		Frank Hayes, Reedsville,	
146		S. K. Chambers & Bro., Elkview,	
802	Special Royal Guano,	A. B. Harnish, Mechanicsburg,	9.26
394	Valley Fertilizer,	L. A. Meyers, Hooversville, R. D. No. 1.	10.27
	S. M. HESS & BROS., INC., PHILA., PA.		
25	†Ammoniated Super Phosphate,	J. D. Hostetler, Lewistown, R. D.,	8.00
4		Geo. Emerick, Centre Hall,	
94		H. H. Basehore, Littlestown,	
250		S. D. Snyder, Meyerstown, R. D. No. 5.	8.82
188	†Fish and Potash Manure,	Leidy Allen, Wismer,	
487		W. J. Newhart, Gilberts,	
719	Good Value Fertilizer,	Robt. Naginey, Milroy,	8.16
93	†Wheat and Grass Manure,	H. H. Basehore, Littlestown,	8.43
24		J. D. Hostetler, Lewistown, R. D.,	
187		Leidy Allen, Wismer,	
	HUBBARD FERTILIZER CO., THE, BALTIMORE, MD.		
668	Hubbard's Special Compound,	Chas. Schumacher, Friedens,	8.00

†Composite sample.
*Constituent falls below guaranty.

LIZERS—Continued.

Phosphoric Acid in 100 Pounds.					Potash in 100 Pounds.				Nitrogen in 100 Pounds.					Computed commercial value of 2,000 lbs. at Dept. rating.	Selling price of 2,000 lbs. at point of selection.
Available.			Total.				Total.					Total.			
Found.	Guaranteed.	Insoluble.	Found.	Guaranteed.	Present as Muriate.	Present as Sulphate.	Found.	Guaranteed.	Water Soluble.	Available.	Inactive Insoluble.	Found.	Guaranteed.		
7.76	7.00	.42	8.18	7.50	.92	.....	.92	1.00	.45	.57	c.27	.84	.82	17.33	18.50 18.50
8.63	8.00	.70	9.33	8.50	.97	.....	.97	1.00	.67	.86	b.22	*1.08	1.50	19.49	17.00 19.25 25.00
9.03	8.00	.62	9.65	8.50	.63	.....	.63	.50	.65	.78	b.19	.97	.82	18.55	.....
†7.62	8.00	1.06	8.68	8.50	.67	.79	*1.46	2.00	.43	.62	c.32	.94	.82	19.28	20.00
8.89	8.00	.26	9.15	9.00	.40	.50	*.90	2.00	.79	.....	.....	.90	.82	18.60	19.00
8.59	8.00	.51	9.10	.....	2.00	.....	2.00	2.00	.32	.50	c.51	1.01	.41	21.02	21.75 18.75
8.49	8.00	3.8	8.87	.....	2.73	.....	*2.73	3.00	.39	.58	c.48	1.06	.82	22.61	23.75 21.40 .....
10.37	10.00	1.46	11.83	.....	.67	.....	.67	....	.59	.78	c.32	1.10	1.03	20.80	17.75
*9.06	10.00	2.97	12.03	.....	.57	.....	.57	....	1.04	1.26	b.28	1.54	1.65	22.21	19.70 ....
9.14	8.00	1.05	10.19	.....	2.19	.....	2.19	2.00	.56	.88	c.68	1.56	1.65	24 69	..... 24.00
7.85	7.00	.54	8.39	.....	1.24	.....	1.24	1.00	.31	.53	c.51	1.04	.82	19.08	..... 20.00
9.20	9.00	1.73	10.93	10.00	3.04	.....	3.04	3.00	.91	1.08	b.16	1.24	1.03	25.45	26.00
7.05	7.00	.83	7.88	8.75	1.14	.....	1.14	1.00	.76	.95	b.17	1.12	.82	18.54	20.00
7.72	4.00	3.17	10.89	8.00	.40	.16	.56	.50	.80	1.54	b.62	2.16	1.50	23.85	27.00
8.92	8.00	1.02	9.94	9.00	1.51	.....	1.51	1.25	.46	.84	b38	*1.22	1.65	21.46	.....
10.04	9.00	.96	11.00	10.00	1.21	.....	*1.21	2.00	.66	1.03	b.57	1.60	1.65	23.65	25.00
8.78	7.00	.79	9.57	8.00	1.74	.....	*1.74	2.00	.47	.73	c.50	*1.23	1.50	21.98	26.00 21.00 .....
9.19	9.00	1.56	10.75	10.00	1.82	.....	1.82	2.00	.38	.51	c.24	.75	.85	20.51	.....
8.81	8.00	1.66	10.47	9.00	1.06	.....	1.06	1.00	.29	.36	c.17	.53	.41	15.26	17.00 ..... 17.00
9.11	8.00	1.59	10.70	9.00	1.54	.....	*1.54	2.00	.33	.48	b.29	.77	.85	19.95	21.00
9.27	8.00	1.40	10.67	9.00	1.67	.....	*1.67	2.00	.24	.34	c.21	.55	.41	16.72	.....
8.16	8.00	1.59	9.75	9.00	2.14	.....	2.14	2.00	1.17	1.44	b.24	1.68	1.65	24.18	24.00 ..... 22.25
7.98	8.00	1.33	9.31	9.00	3.52	.....	3.52	3.00	.86	1.26	b.40	1.66	1.65	26.86	.... 26.00
6.52	6.00	.91	7.43	7.00	2.63	.....	*2.63	3.00	.54	.71	b.19	.90	.82	20.24	.....
8.28	8.00	1.29	9.57	9.00	1.96	.....	1.96	2.00	.72	.84	b.18	1.02	.82	21.02	19.50 21.00 .....
12.98	12.00	.98	13.96	13.00	.62	.....	.62	....	.37	.48	c.30	.78	.61	18.08	18.00

a b c characters indicating the proportion of insoluble nitrogen that is inactive: a=two-fifths or less; b=two-fifths to three-fifths; c=three-fifths or more.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.	Moisture in 100 pounds.
	INTERNATIONAL AGRICULTURAL CORP., BUFFALO FERT. WORKS, BUFFALO, N. Y.		
477	†Buffalo Farmers' Choice,	Wm. H. McCum, Clymer, R. D.,	8.43
516		Asa McDonald, Greenville,	
397	Buffalo One Eight Two,	Edward Frazier, Shanksville,	6.26
	JARECKI CHEMICAL CO., SANDUSKY, O.		
527	Raw Bone and Phosphate Mixture,	Frank Metz, Freedom,	5.81
	KEYSTONE BONE FERTILIZER CO., PHILADELPHIA, PA.		
820	1915 Keystone Economy Potash Compound,	M. K. Keith & Son, Wernersville,	8.07
564	†1915 Keystone Excelsior Wheat Grower,	Chas. Ebner, Easton, R. D. No. 3,	8.95
308		E. A. Slagle, Paxinos,	
578		A. B. Bomgardner, Palmyra,	
495	†1915 Keystone Grain and Grass Manure,	Eugene Green, Kunkletown,	7.60
744		Chas. Schoffstall, Valley View,	
821	1915 Keystone Royal Corn and Potato Manure.	M. K. Keith & Son, Wernersville,	9.49
	LANCASTER BONE FERTILIZER CO., LANCASTER, PA.		
17	Complete Ammoniated Bone Manure,	J. W. Garman, Rockfield,	9.85
64	†Lancaster Favorite,	H. W. Milliken, Academia,	8.99
458		Ira Bechtel, Roaring Spring,	
340		O. H. Gibbony, Saulsburg,	
288	†Corn Grass and Wheat Special,	Harry Hufnagle, New Oxford,	6.13
459		Ira Bechtel, Roaring Springs,	
332	†Keystone Standard,	John A. Cooper, Washingtonville,	8.26
460		Ira Bechtel, Roaring Springs,	
18	Scientific Animal Bone Compound,	J. W. Garman, Rockfield,	11.12
	LANCASTER CHEMICAL CO., LANCASTER, PA.		
554	†General Crop Special No. 15,	H. W. Burg, East Prospect,	10.07
172		Abraham Hendricks, Perkasie, R. No. 4.	
740		Elias Morgan, Pine Grove,	
613	Hard Times No. 6,	New Providence Coal Co., New Providence.	9.05
738	†Success Brand, No. 18,	Elias Morgan, Pine Grove,	7.31
555		H. W. Burg, East Prospect,	
800		D. J. Beitzel, Mechanicsburg,	
171	No. 3 Dissolved Animal Bone and Potash,	Abraham Hendricks, Perkasie, R. No. 4.	7.40
739	No. 4 Rising Sun Animal Bone,	Elias Morgan, Pine Grove,	6.93
852	Three, Ten, Two,	W. E. Bongo, Rochester, R. No. 1,	7.75
	LEBANON FERTILIZER WORKS, LEBANON, PA.		
235	Levan's Wheat and Grass Fertilizer,	A. J. Fidler, Sec., Rock Grange No. 1258.	6.16
	LISTER AGRICULTURAL CHEMICAL WKS., NEWARK, N. J.		
166	†Lister's Ammoniated Dissolved Superphosphate.	W. E. Erviu, Somerton,	9.85
317		Zehner Bros., Bloomsburg,	
	LISTER AGR. CHEM. WKS., NEWARK, N. J.		
23	†Lister's Golden Sheaf,	M. P. Herman, Selinsgrove,	8.46
10		C. H. Unger, Spring Mills, R. D.,	
270		Allison & Fogelsonger, Shippensburg,	
271	†Lister's Harvest Queen Phosphate,	Allison & Fogelsonger, Shippensburg,	10.30
110		J. N. Herst, New Oxford,	
650		D. W. Bortz, Greensburg,	
467	Lister's Special for Wheat and Rye,	Jacob Krug, Hastings,	8.61
428	†Lister's Special Wheat Fert.,	Wm. H. Fritz, Berwyn,	10.13
79		W. H. Schriver, Dillsburg,	
466		Jacob Krug, Hastings,	
547	†Lister's Squirrel Brand Fert.,	A. M. Grove & Co., Muddy Creek Forks.	8.92
9		C. H. Unger, Spring Mills,	
692		William Kinney, Jerseytown,	
80	†Lister's Standard Pure Super Phosphate of Lime.	W. H. Schriver, Dillsburg,	9.66
427		Wm. H. Fritz, Berwyn,	
634	Lister's Wheat & Rye Fert.,	N. I. Norton, New Albany,	11.39

†Composite sample.
*Constituent falls below guaranty.

LIZERS—Continued

Phosphoric Acid in 100 Pounds.					Potash in 100 Pounds.				Nitrogen in 100 Pounds.					Computed commercial value of 2,000 lbs. at Dept. rating.	Selling price of 2,000 lbs. at point of selection.
Available.			Total.				Total.					Total.			
Found.	Guaranteed.	Insoluble.	Found.	Guaranteed.	Present as Muriate.	Present as Sulphate.	Found.	Guaranteed.	Water Soluble.	Available.	Inactive Insoluble.	Found.	Guaranteed.		
10.66	10.00	1.34	12.00	11.00	2.15	.....	2.15	2.00	.38	.63	b.26	.89	.80	23.13	24.00 25.00
*7.79	8.00	1.67	9.46	9.00	1.93	.11	2.04	2.00	.51	.81	a.19	1.00	.80	20.98	25.50
9.52	8.00	7.09	16.61	16.00	.99	.....	.99	1.00	.63	1.29	a.36	1.65	1.65	25.93	26.00
6.56	5.00	1.34	7.90	6.00	1.78	.....	1.78	1.00	.67	.79	b.16	.95	.82	18.94	17.00
7.77	7.00	1.58	9.35	8.00	3.11	.....	3.11	3.00	.74	.86	b.19	1.05	.82	23.25	21.50 20.00 21.75
8.23	7.00	1.61	9.84	8.00	1.44	.....	1.44	1.00	.70	.82	b.18	1.00	.82	20.12	18.00 18.00
*7.56	8.00	1.79	1*9.35	10.00	3.18	.....	3.18	3.00	1.22	1.68	b.36	2.04	2.05	27.93	27.50
8.44	8.00	1.46	9.90	9.00	2.40	.....	2.40	2.00	.56	.71	c.30	1.01	.82	22.16	22.00
*9.54	10.00	.94	*10.48	11.00	1.27	.....	1.27	1.00	.89	1.18	b.28	1.46	1.65	22.62	25.00 27.00
*8.66	9.00	1.57	10.23	10.00	.48	.....	.48	.50	.67	.85	c.33	1.18	1.23	19.47	....
10.33	10.00	.80	11.13	11.00	1.19	.....	1.19	1.00	.25	.....	.....	.44	.29	15.92	21.00 17.50 18.50
*8.17	9.00	1.58	*9.75	10.00	2.17	.....	2.17	2.00	.88	1.04	c.28	1.32	1.23	22.82	26.00
9.23	8.00	.57	9.80	9.00	.73	.57	*1.30	3.00	.99	1.18	b.20	*1.38	1.65	22.17	.... 22.00
11.24	10.00	1.01	12.25	11.00	.40	.58	.98	1.00	.21	.41	b.21	.62	.44	16.98	17.00
8.87	8.00	1.06	9.93	9.00	1.07	.46	*1.53	3.00	.46	.64	b.19	.83	.82	20.07	20.00 ..... 24.00
*9.25	10.00	.93	*10.18	11.00	1.08	....	*1.08	3.00	1.69	.....	.....	1.83	1.65	23.86	.....
*7.70 10.22	10.00 10.00	.61 .74	*8.31 10.96	11.00 11.00	.67 .40	1.19 1.05	1.86 *1.45	2.00 2.00	1.24 1.05	2.09 1.18	a.30 a.68	2.39 *1.26	2.47 2.47	26.64 22.86	27.00 .....
9.12	8.00	1.02	10.14	9.00	3.07	.....	*3.07	4.00	.53	.63	c.19	.82	.82	22.99	28.00
8.41	8.00	1.78	10.19	9.00	1.38	.....	1.38	1.50	.84	1.30	b.56	*1.86	2.06	24.12	27.00 26.00
8.41	8.00	.96	9.37	9.00	2.06	.....	2.06	2.00	.32	.....	.....	.53	.41	19.11	19.50 ..... 19.00
9.38	9.00	1.91	11.29	10.00	2.18	.....	2.18	2.00	.69	.92	b.33	1.25	1.23	23.96	23.50 ..... 30.00
8.31	8.00	1.51	9.82	9.00	2.18	.....	2.18	2.00	1.14	1.42	b.23	1.65	1.65	24.61	26.75
8.03	8.00	2.04	10.07	9.00	3.00	.....	3.00	3.00	1.02	1.27	b.36	1.63	1.65	26.28	27.50 25.50 27.75
*7.80	8.00	1.92	9.72	9.00	2.06	.....	2.06	2.00	.53	.69	b.23	.92	.82	20.60	20.25 ..... 20.50
9.01	9.00	1.76	10.77	10.00	2.68	.....	2.68	2.00	1.51	1.94	b.48	2.42	2.47	29.79	27.00 30.00
8.00	8.00	1.39	9.39	9.00	2.28	.....	2.28	2.00	.84	1.37	a.34	1.71	1.65	24.72	26.00

a b c characters indicating the proportion of insoluble nitrogen that is inactive: a=two-fifths or less; b=two-fifths to three-fifths; c=three-fifths or more.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.	Moisture in 100 pounds.
	FREDERICK LUDLAM CO., BALTIMORE, MD.		
782	Ludlam's Cecrops Fert., A. B. F. Brand,..	Lewis Long, Elliottsburg, ...	9.98
169	Ludlam's Cecrops Fert. No. 2, Grain & Grass.	W. D. Myers, East Berlin, ...	9.61
	MAPES FORMULA & PERUVIAN GUANO CO., NEW YORK.		
414	Mapes Cereal Brand, ...	Henry W. Satterthwait, Woodbourne,	7.97
	MARTIN FERTILIZER CO., PHILA., PA.		
54	Martin's Ammoniated Phospbate, ...	Buffalo Valley Farmers & Consumers Asso., Lewisburg.	12.46
77	†Martin's Corn & Cereal Special, ...	Diehl, Omwake & Diehl, Greencastle.	9.75
58		Buffalo Valley Farmers & Consumers Asso., Lewisburg.	
417	†Martin's Dissolved Organic Compound, ..	N. B. Keim & Sons, Langhorn, ..	9.89
234		Jno. K. Miller, Summit Station,..	
13		J. C. Bowersox, Middleburg, ...	
416		N. B. Keim & Sons, Langhorn, ..	
52	Martin's Pure Animal Bone & Potash, ...	Buffalo Valley Farmers & Consumers Asso., Lewisburg.	4.33
51	Martin's Special Crop Grower, ...	Buffalo Valley Farmers & Consumers Asso., Lewisburg.	11.40
832	Martin's Sure Grower, ...	L. A. Geiger, Joanna, ...	11.63
	MILLER FERTILIZER CO., THE, BALTIMORE, MD.		
838	†Ammoniated, ...	W. H. Muth & Co., Lititz, ...	6.60
456		M. T. Harkins, Hickory Hill, ...	
535		J. P. Schuebart, New Freedom, ...	
303	†Harvest Queen, ...	J. A. Gass, Sunbury, ...	7.37
258		John Shiffer, Derry Church, R. No. 2.	
761		C. R. Bucher, Myerstown, ...	
259		John Shiffer, Derry Church, R. No. 2.	
21	†Hustler Phosphate, ...	J. W. Teats, Mt. Pleasant Mills,..	6.71
549		F. M. Shenberger, Red Lion, R. No. 1.	
302	†M. B. S., ...	J. A. Gass, Sunbury, ...	7.04
20		J. W. Teats, Mt. Pleasant Mills,..	
537	†Miller's No. 1 Special, ...	J. P. Schuchart, New Freedom, ...	6.69
536		J. P. Schuchart, New Freedom, ...	
19		J. W. Teats, Mt. Pleasant Mills,..	
762		C. R. Bucher, Myerstown, No. 4,..	
301	Miller's No. 2 Special, ...	J. A. Gass, Sunbury, ...	5.65
136	†Standard Phosphate, ...	Geo. C. Linebaugh, Dover No. 4,...	3.67
839		W. H. Muth & Co., Lititz, ...	
135	W. G. Phosphate, ...	Geo. C. Linebaugh, Dover No. 4,...	3.71
	NASSAU FERTILIZER CO., NEW YORK CITY.		
588	Big Yield, ...	Philip Miller, Nescopeck, ...	9.50
589	Plow Brand, ...	Philip Miller, Nescopeck, ...	9.41
804	Special Mixture, ...	W. H. Mumma, Mechanicsburg, ...	12.58
586	†Wheat & Grass Grower, ...	Philip Miller, Nescopeck, ...	9.87
624		Daniel A. Rosenberger, Oley, ...	
	G. OBER & SONS CO., BALTIMORE, MD.		
399	Ober's Farmers Mixture, ...	Merle Hay, Berlin R. D. No. 1, ...	9.52
784	Ober's Independent Ammoniated Super Phosphate.	J. M. Sarver, Millerstown, ...	9.10
128	†Ober's Red Arrow Guano, ...	D. Blocher & Co., Gettysburg, ...	8.98
400		Merle Hay, Berlin, R. No. 1, ...	
721	Ober's Sea Island Fisb Guano, ...	Wagner Geise, Bellefonte, ...	9.97

†Composite sample.
*Constituent falls below guaranty.

LIZERS—Continued.

Phosphoric Acid in 100 Pounds.					Potash in 100 Pounds.				Nitrogen in 100 Pounds.					Computed commercial value of 2,000 lbs. at Dept. rating.	Selling price of 2,000 lbs. at point of selection.
Available.		Insoluble.	Total.		Present as Muriate.	Present as Sulphate.	Total.		Water Soluble.	Available.	Inactive Insoluble.	Total.			
Found.	Guaranteed.		Found.	Guaranteed.			Found.	Guaranteed.				Found.	Guaranteed.		
8.25	8.00	1.73	9.98	9.00	1.88	.....	1.88	2.00	1.21	1.53	a.21	1.74	1.65	24.52	23.50
7.14	7.00	1.24	8.38	8.00	1.16	.....	1.16	1.00	.60	.78	b.19	.97	.82	12.12	15.35
7.05	6.00	1.81	8.86	8.00	.80	1.61	*2.41	3.00	.80	1.23	b.57	1.80	1.65	25.10	36.00
*9.55	10.00	.59	10.14	.....	.40	.30	.70	....	2.88	3.02	c.36	3.38	1.65	30.28	.....
9.58	8.00	1.54	11.12	.....	1.48	.....	*1.48	2.00	.62	1.01	c.66	1.67	1.65	24.32	24.00 ..... 24.25
8.99	9.00	1.34	10.33	.....	1.82	.....	1.82	2.00	.55	.71	c.39	1.10	1.03	21.83	22.00 21.00 23.75
9.59	.....	5.37	*14.96	16.00	1.48	.....	*1.48	2.50	.71	1.24	a.21	*1.45	1.65	25.28	.....
9.90	10.00	.88	10.78	.....	1.26	.....	1.26	.50	.57	.74	c.38	1.12	1.03	21.32	.....
8.19	8.00	1.21	9.40	.....	1.06	.....	1.06	1.00	.55	.71	c.37	1.08	.82	18.52	18.00
8.21	8.00	.83	9.04	8.50	.97	.....	.97	1.00	.97	1.18	b.31	1.49	1.44	20.97	.... 21.00
9.27	9.00	.64	9.91	9.50	1.12	.....	1.12	.75	.70	.89	b.30	1.09	1.03	20.30	24.00 20.00 ..... 19.00
8.55	8.00	.57	9.12	8.50	.74	.....	.74	.50	.59	.75	b.21	.96	.82	18.20	18.00
8.03	7.00	.57	8.60	7.50	1.83	.....	1.83	2.00	.55	.70	c.28	.98	.82	20.25	17.25 25.00 22.00 21.00
9.87	10.00	1.04	10.91	10.50	.63	.....	.63	....	1.12	1.35	b.34	1.69	1.65	22.86	21.00 22.00 .....
9.41	9.00	.41	9.82	9.50	.67	.16	.83	....	.71	.85	c.25	1.10	1.03	19.84	22.00
8.47	8.00	.45	8.92	8.50	.80	1.13	1.93	2.00	1.74	1.98	b.35	2.33	2.47	27.20	26.00 .....
6.87	7.00	.42	*7.29	7.50	.48	.....	.48	.50	.22	.37	b.19	.56	.41	14.40	16.50
*8.59	9.00	2.04	10.63	10.00	3.16	.....	3.16	3.00	.91	1.33	b.29	1.62	1.65	26.85	25.75
*7.67	8.00	1.37	9.04	9.00	2.06	.....	2.06	2.00	1.05	1.45	b.33	1.78	1.65	24.38	25.00
10.18	10.00	1.54	11.72	11.00	2.63	.....	*2.63	3.00	.57	.70	b.16	.86	.82	23.56	.....
8.31	8.00	1.21	9.52	9.00	2.10	.....	2.10	2.00	.65	.79	b.18	.97	.82	21.07	22.00
9.52	9.00	.91	10.43	10.00	2.54	.....	2.54	2.00	.68	.92	b.20	1.12	.82	23.65	22.00
9.05	8.00	1.05	10.10	9.00	1.22	.....	1.22	1.00	.37	.70	b.35	1.05	.82	20.29	.....
9.36	9.00	.96	10.32	10.00	3.35	.....	3.35	3.00	.62	.86	a.15	1.01	.82	24.67	23.00 23.75
8.05	8.00	1.08	9.13	9.00	2.10	.....	2.10	20.0	1.06	1.49	a.28	1.77	1.65	24.44	.....

a, b, c: Letters indicating the proportion of insoluble nitrogen that is inactive: a=2/5 or less b=2/5 to 3/5; c=3/5 or more.

Sample number	Manufacturer and Brand.	From Whom Sample Was Taken.	Moisture in 100 pounds.
	PATAPSCO GUANO CO., BALT., MD.		
181	†Patapsco B. B. & P. Brand,	I. E. Noble, Pleasant Valley,	8.70
120		E. C. Thomas, Gettysburg,	
374		Chas. Shimmel, Ackermanville,	
180	†Patapsco General Crop Produce,	I. E. Noble, Pleasant Valley,	9.07
278		John Failor, Newburg,	
630	Patapsco Golden Crop Fertilizer,	Summit Lumber Co., Clarks Summit,	9.32
182	†Patapsco Special Grain & Grass Producer,	I. E. Noble, Pleasant Valley,	9.84
50		G. R. Schell, Vicksburg,	
279		John Failor, Newburg,	
	PIEDMONT MT. AIRY GUANO CO., BALTIMORE, MD.		
796	Insula Guano for All Crops,	A. H. Ulsh, Millerstown,	7.82
727	Levering's Excelsior,	Jno. G. Dubbs, Bellefonte,	6.08
595	†Levering's Harvest Queen,	T. W. Rumbel, Ringtown,	7.18
123		H. D. & J. F. Bream, Gettysburg,	
728		Jno. G. Dubbs, Bellefonte,	
122	Piedmont Eagle Brand,	H. D. & J. F. Bream, Gettysburg,	8.13
	PITTSBURG PROVISION & PACKING CO., PITTSBURGH, PA.		
649	Keystone Fertilizer,	P. H. Saxman, Latrobe,	7.99
	POLLOCK FERTILIZER CO., THE, BY AMER. AGRI. CHEM., BALTIMORE, MD.		
548	The Pollock's Fertilizer Co., Ammoniated Super Phosphate,	F. M. Shenberger, Red Lion, R. No. 1.	8.63
39		C. S. Garbrick, Mingoville,	
685		Wilson Dibert, Bedford,	
95	†The Pollocks Fert. Co., Special Invigorator.	J. H. Kelley, Littlestown,	9.40
61		H. M. Owen & Co., Lewistown,	
264		J. D. Garman, Mongal,	
140	The Pollocks Fert. Co., Special Wheat and Corn Fertilizer.	John Gingerich, Seven Valley, R. D.	10.54
	RASIN MONUMENTAL CO., BALTIMORE, MD.		
160	Rasin's Best Wheat & Grass Producer,	W. H. Walker & Co., Kennett Square.	9.88
47	Rasin's Emergency Royal Fish Bone & Potash.	S. B. Miller, Mifflinburg,	10.51
561	Rasin's Empire Guano Special,	Emanuel Boyer, Elizabethville,	8.97
836	Rasin's Quality Compound,	L. A. Geiger, Joanna,	11.06
139	†Rasin's Royal Fish Bone & Potash,	H. M. Sunday, Dover No. 2,	11.78
68		W. W. Book, Port Royal,	
147		E. H. Keen & Co., Parkersburg,	
321	Rasin's Royal Manure,	H. D. Miller, Mifflinville,	10.09
700	Rasin's Special Fish & Bone Guano,	H. B. Low & Son, Orangeville,	8.18
701	†Rasin's Special Fish & Potash Mixture,	H. B. Low & Son, Orangeville,	9.70
835		L. A. Geiger, Joanna,	
179	†Rasin's United Grain Grower,	Henry K. Mohr, Quakertown,	8.41
7		Bradford & Son, Center Hall,	
403		C. G. Sechler, Somerset R. D. No. 1,	
	ROBT. A. REICHARD, ALLENTOWN, PA.		
203	Golden Harvest Phosphate,	No agent, Fogelsville,	5.25
363	Improved Top Dresser,	E. J. Gerbach, Bethlehem,	6.52
361	Surpass Phosphate,	E. J. Gerbach, Bethlehem,	5.10
	F. S. ROYSTER GUANO CO., BALTIMORE, MD.		
660	†Royster's Farmers Delight,	C. C. Davis, Greensboro,	8.57
43		Jno. H. Strickler, Mifflinburg,	
766		Chas. E. Zeigler, Duncannon,	
131	†Royster's Seeding Down Special Fert.,	G. B. Murphy, Red Lyon,	8.22
26		Wm. W. Atkinson, McVeytown,	
192		John N. Stein, Compassville,	
44	†Royster's Wheat, Oats & Barley Fertilizer.	Jno. H. Strickler, Mifflinburg,	8.97
46		J. S. Waite & Co., Bellefonte,	
132		G. B. Murphy, Red Lyon, No. 1,	

†Composite sample.
*Constituent falls below guaranty.

LIZERS—Continued.

Phosphoric Acid in 100 Pounds.					Potash in 100 Pounds.				Nitrogen in 100 Pounds.					Computed commercial value of 2,000 lbs. at Dept. rating.	Selling price of 2,000 lbs. at point of selection.
Available.			Total.				Total.					Total.			
Found.	Guaranteed.	Insoluble.	Found.	Guaranteed.	Present as Muriate.	Present as Sulphate.	Found.	Guaranteed.	Water Soluble.	Available.	Inactive Insoluble.	Found.	Guaranteed.		
8.23	8.00	.93	9.21	9.00	1.92	.....	1.92	2.00	.37	.46	b.11	.57	.41	18.69	17.75 19.00 19.50
7.21	7.00	1.15	8.36	8.00	.92	.....	.92	1.00	.51	.65	b.18	.83	.82	17.15	17.40 .....
9.50	9.00	1.21	10.71	10.00	2.76	.....	*2.76	3.00	1.15	1.48	b.30	1.78	1.65	27.36	25.00
7.77	4.00	1.40	9.17	5.00	2.83	.....	2.83	3.00	.72	.86	b.16	1.02	.82	22.19	21.65 23.50 .....
9.90	7.00	.68	10.58	.....	2.02	.....	2.02	2.00	.28	.36	c.19	.55	.41	17.70	19.00
9.34	8.00	.76	10.10	.....	1.02	.....	1.02	1.00	.44	.57	c.28	.85	.82	19.09	19.20 .....
9.45	8.00	.61	10.06	.....	1.78	.....	*1.78	2.00	.48	.60	c.28	.88	.82	20.97	22.00 23.00
10.53	10.00	.95	11.48	.....	.53	.22	*.75	1.00	.69	1.19	a.33	1.52	1.65	22.77	24.50
9.21	9.00	1.91	11.12	11.00	1.50	....	1.50	1.50	.23	1.04	b.81	1.85	1.48	25.21	25.00
7.97	8.00	1.53	9.50	9.00	1.86	.....	1.86	2.00	1.18	1.36	b.23	1.59	1.65	23.37	22.50 ..... 22.00
8.26	8.00	1.17	9.43	9.00	2.90	.....	2.90	3.00	.65	.77	b.18	.95	.82	22.65	22.00 25.50 .....
8.09	8.00	1.58	9.67	9.00	2.02	....	2.02	2.00	.79	.91	b.14	1.05	.82	21.31	18.77
8.39	8.00	1.07	9.46	9.00	3.36	.....	3.36	3.00	1.13	1.25	c.20	1.45	1.23	25.92	26.00
8.89	8.50	2.89	11.78	9.50	1.09	.....	1.09	1.00	.85	1.24	b.36	1.60	1.65	23.35	.....
8.30	8.00	.75	9.05	9.00	2.06	.....	*2.06	3.00	1.27	1.43	a.09	*1.52	2.47	23.26	22.90
7.89	7.00	1.02	8.91	8.00	2.85	.....	2.85	3.00	.57	.69	b.17	.86	.82	21.69	22.00 26.50
8.59	8.00	1.85	10.44	9.00	3.26	.....	3.26	3.00	.79	1.17	b.46	1.63	1.65	27.19	25.75 26.00
8.95	8.00	1.91	10.86	9.00	1.04	.....	1.04	1.00	.27	.....	.....	.45	.41	14.96	20.00
11.82	11.00	2.39	14.21	12.00	.68	.....	.68	....	.71	1.04	b.30	*1.34	1.65	23.76	23.00
6.62	6.00	1.33	7.95	7.00	3.32	.....	3.32	3.00	.86	1.39	a.33	1.72	1.65	25.47	24.00 23.00
8.83	8.00	1.98	10.81	9.00	1.98	.....	1.98	2.00	.49	.63	b.22	.85	.82	21.23	..... 22.50 20.75
7.87	8.00	1.63	*9.50	10.00	4.53	.30	4.83	5.00	.57	1.25	a.41	1.66	1.64	29.78	.....
6.40	6.00	.46	*6.86	7.50	4.22	....	4.22	4.00	5.20	6.27	a.37	6.64	6.58	49.27	45.00
8.31	8.00	.26	*8.57	10.00	1.96	....	1.96	2.00	.53	1.12	b.48	1.60	1.64	23.27	26.00
8.10	8.00	.91	9.10	8.50	1 94	.....	1.94	2.00	.19	.38	b.17	.55	.41	16.52	26.00 18.50 18.75
9.38	9.00	1.06	10.45	9 50	2.98	.....	2.98	3.00	.63	.87	a.11	.98	.82	24.05	23.50 25.50 20.50
8.19	8.00	.98	9.17	8.50	2.14	.....	2.14	2.00	.54	.82	a.18	1.60	.82	21.19	20.50 22.00 20.50

a, b, c: Letters indicating the proportion of insoluble nitrogen that is inactive: a=2/5 or less; b=2/5 to 3/5; c=3/5 or more.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.	Moisture in 100 pounds.
	SCOTT FERTILIZER CO., THE, ELKTON, MD.		
367	†Scott's Grain Special,	William Beck, Easton, R. D. No. 4,	
256		Elias S. Brubacher, Richland,	8.51
614		M. R. Royer, Ephrata, R. D. No. 4,	
498	†Scott's Standard Phosphate,	David Green, Little Gap,	7.69
615		M. R. Royer, Ephrata, R. D. No. 4,	
450	†Scott's Sure Crop Grower For Wheat	Mackey & Yerkes, Oxford,	
492	Grass.	N. A. Borillinger, Palmerton, No. 1,	8.75
	SMITH'S AGRICULTURAL CHEMICAL CO., COLUMBUS, O.		
530	Smith's Corn, Oats and Wheat Fert.,	W. F. Beck, W. F. Beck's Farm, Lancaster Co., Pa.	5.53
531	Smith's Crop Producer,	W. F. Beck, W. F. Beck's Farm, Lancaster Co., Pa.	8.89
	FOR SOUTHERN FERT. CO., YORK, PA., BY AM. AGR. CHEM. CO.		
143	Southern Fert. Co.'s Farmer's Choice Brand.	Bert Hoff, Spring Grove,	10.94
141	†Southern Fert. Co.'s General Crop	Bert Hoff, Spring Grove,	
335	Grower.	J. G. Rishel, Jerseytown,	10.08
691	Southern Fert. Co.'s Special Potato Grower Revised.	J. G. Rishel, Jerseytown,	8.83
	STANDARD GUANO CO., BALTIMORE, MD.		
2233	Standard Fish Bone & Potash,	H. H. Loose, Menges Mills,	7.09
2874	†Standard Jewel Mixture,	L. Cooper Ramsay, Delta,	
3263		C. L. Shipman, Hughesville,	
	SWIFT & CO., BALTIMORE, MD.		
448	†Swift's Pure Grain & Grass Grower,	J. C. Emery & Co., Nottingham,	
423		W. J. Pratt & Sons, West Chester, R. D.	7.33
642	†Swift's Pure Grain Fertilizer,	L. M. Smith,, Tioga,	
309		Reed and Erdman, Paxinos,	
60		Galloway and Meek, Allenwood,	
788		Kipp and Moore, Millerstown,	8.28
311	Swift's Pure Reliable Grain Fertilizer,	Reed and Erdman, Paxinos,	7.11
	TAYLOR PROVISION CO., TRENTON, N. J.		
415	Standard Grain Grower,	Henry Palmer, Langhorn,	8.24
	I. P. THOMAS & SONS CO., PHILADELPHIA, PA.		
422	Champion Fertilizer,	John B. Detwiler, Dublin,	11.85
173	†Farmer's Choice Phosphate,	I. S. Snyder, Sellersville,	
65		L. S. Knezer, Mifflintown,	10.14
518	†Superior Super Phosphate,	Wm. J. Moyer, Greenville,	
421		John B. Detwiler, Dublin,	
371		George Hayden, Nazareth, R. No. 4,	8.71
696	†Tip Top Guano,	C. R. Henrie & Son, Millville,	
66		L. S. Knezer, J. A. Martin, Mifflintown, R. D.	10.35
708		F. P. Davis, Bloomsburg,	
	TRENTON BONE FERTILIZER CO., TRENTON, N. J.		
189	Special Grain,	L. A. Howells, Morrisville,	8.77
	JACOB TRINLEY & SONS, LINFIELD, PA.		
150	Ravene Phosphate for All Crops,	A. M. F. Stiteler, Uwchland,	9.01
151	Trinley's Two, Eight, Five,	A. M. F. Stiteler, Uwchland,	8.78
	F. W. TUNNEL & COMPANY, INC., PHILADELPHIA, PA.		
491	Excelsior Phosphate,	A. H. Kochler, Freemansburg,	9.92
	TUSCARORA FERTILIZER CO., BALTIMORE, MD.		
198	Ammoniated Phosphate,	Lewis Geier, Slatington No. 1,	6.43

†Composite sample.
*Constituent falls below guaranty.

LIZERS—Continued

Phosphoric Acid in 100 Pounds.					Potash in 100 Pounds.				Nitrogen in 100 Pounds.					Computed commercial value of 2,000 lbs. at Dept. rating.	Selling price of 2,000 lbs. at point of selection.
Available.			Total.				Total.					Total.			
Found.	Guaranteed.	Insoluble.	Found.	Guaranteed.	Present as Muriate.	Present as Sulphate.	Found.	Guaranteed.	Water Soluble.	Available.	Inactive Insoluble.	Found.	Guaranteed.		
*8.03	10.00	1.34	9.37	.....	2.03	.....	2.03	2.00	.22	.29	c.20	.49	.42	18.76	16.25 19.20 21.00
*9.19	10.00	.82	10.01	.....	1.38	.....	1.38	1.00	.36	.....	.....	*.56	.82	16.03	....
10.81	10.00	2.32	13.13	.....	2.15	.....	2.15	2.00	.76	1.35	a.37	1.72	1.65	27.39	25.00 20.50
8.05	8.00	1.29	9.34	.....	1.33	.37	*1.70	2.00	.93	1.15	c.53	1.68	1.64	23.58	23.25
9.38	9.00	.89	10.27	.....	3.03	.....	3.03	3.00	.92	1.17	b.42	1.59	1.64	26.77	26.00
*8.36	9.00	1.64	10.00	10.00	2.00	.....	2.00	2.00	.81	.95	b.13	1.08	.82	21.80	21.00
8.41	8.00	.96	9.37	9.00	1.94	.....	1.94	2.00	.30	.39	c.15	.54	.41	16.67	19.00 19.00
8.54	8.00	1.89	10.43	9.00	2.41	.....	*2.41	3.00	.77	1.05	b.21	1.26	1.23	23.60	23.00
9.43	9.00	.86	10.29	9.50	.98	.....	*.98	3.00	.42	.66	b.27	.93	.82	19.69	21.00
8.05	8.00	.83	8.88	8.50	4.36	.....	*4.36	5.00	1.20	1.41	b.28	1.69	1.64	28.69	24.25 28.00
8.86	9.00	1.02	9.88	.....	1.16	.....	1.16	1.00	.63	.72	c.27	.99	.82	19.81	20.00 20.00 25.00
8.52	8.00	1.28	9.80	.....	1.86	.....	1.86	2.00	.44	.57	c.29	.86	.82	20.34	23.00 ..... 21.00
8.35	8.00	.78	9.13	.....	1.42	.....	1.42	1.00	.81	.92	c.26	1.18	.82	20.62	21.00
8.54	8.00	1.15	9.69	9.00	2.52	.....	2.52	2.50	.52	.73	a.13	.86	.82	21.62	27.00
10.38	10.00	.80	11.18	10.50	1.73	.....	1.73	1.50	1.06	1.47	b.29	1.76	1.65	25.70	25.00
9.87	9.50	.83	10.70	10.00	1.90	.....	1.90	2.00	.98	1.33	b.37	1.70	1.65	23.27	26.00 24.00 25.00
7.24	7.00	1.28	8.52	7.50	1.48	.....	1.48	1.00	.58	.71	c.24	.95	.82	18.95	20.00 .....
10.26	10.00	1.00	11.26	10.50	2.62	.....	2.62	2.00	1.28	1.86	b.40	2.26	2.45	29.67	18.00 ..... 27.50
9.96	9.00	1.46	11.42	10.00	.60	.....	.60	....	.92	1.46	a.32	1.78	1.64	23.48	22.00
9.25	9.00	1.70	10.95	10.00	2.67	.....	2.67	2.00	.78	.97	c.53	1.50	1.23	25.80	25.50
9.23	8.00	2.04	11.27	9.00	3.25	.....	3.25	3.00	.69	1.34	b.48	1.82	1.65	27.57	27.00
10.33	5.00	2.80	13.13	6.00	2.14	.....	2.14	1.60	.61	1.30	a.37	1.67	.82	26.97	.....
7.40	7.00	.57	7.97	7.50	1.40	.....	1.40	1.00	.40	.52	c.26	.78	.82	17.83	.....

a, b, c: Letters indicating the proportion of insoluble nitrogen that is inactive: a=2/5 or les b=2/5 to 3/5; c=3/5 or more.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.	Moisture in 100 pounds.
	J. E. TYGERT CO., PHILADELPHIA, PA., BY AM. AG. CHEM. CO.		
323	Early Truck Guano,	Geo. D. Miller, Mifflinville,	11.89
	VIRGINIA CAROLINA CHEMICAL CO., FOR SALE BY RASIN MONUMENTAL CO.		
724	V. C. C. Co.'s Fish Bone & Potash,	McCalmont & Co., Bellefonte,	12.60
305	V. C. C. Co.'s Special for Wheat & Grass,	E. A. Slagle, Paxinos,	9.58
646	V. C. C. Co.'s Wheat & Clover Mixture,	E. B. Maurer, Boswell,	9.99
	WOOLDRIDGE FERTILIZER CO., THE, BALTIMORE, MD.		
283	†Clover Leaf Crop Grower,	W. S. Stewart, Carlisle,	6.58
693		Grant Johnson, Millville,	
252	Clyclone,	Frank Frederick, Cocalico,	8.11
254	High Grade Potato & Tomato Grower,	Frank Frederick, Cocalico,	5.44
282	†Old Hickory Phosphate,	W. S. Stewart, Carlisle,	6.57
253		Frank Frederick, Cocalico,	
694		Grant Johnson, Millville,	
	ROBT. A. WOOLDRIDGE CO., BALTIMORE, MD.		
539	Wooldridge's Ammoniated Phosphate,	S. H. Shearer, Seven Valley, R. D.,	10.46
41	†Wooldridge's Champion Stag Phosphate,	C. C. Catherman, Hartleton,	10.58
33		R. E. Brindle, Belleville,	
87		J. J. Spangler, Littlestown,	
88	Wooldridge's Chieftian Phosphate,	J. J. Spangler, Littlestown,	10.09
86	†Wooldridge's Farmers Favorite Cereal Special Compound.	J. J. Spangler, Littlestown,	8.29
32		R. E. Brindle, Belleville,	
350		H. E. Heeston, Saltitle,	
603	Wooldridge's Triumph Brand Special Phosphate.	John Frantz, Cressona,	9.41
	YORK CHEMICAL WORKS, YORK, PA.		
575	Dempwolf's Crop Grower,	Hershey Store Co., Hershey, Pa.,	5.96
541	Dauphin Brand,	H. E. Roberts, Cordorus,	6.42
106	Dempwolf's Half & Half,	H. M. Berkheimer, Abbottstown,	5.43
	HENRY S. ZOOK, ELVERSON, PA.		
410	No. 6 Pride of Chester Phosphate for General Use.	J. K. Stoltzfus, Elverson,	4.98

†Constituent falls below guaranty.
‖Composite sample.

LIZERS—Continued

Phosphoric Acid in 100 Pounds.					Potash in 100 Pounds.				Nitrogen in 100 Pounds.					Computed commercial value of 2,000 lbs. at Dept. rating.	Selling price of 2,000 lbs. at point of selection.
Available.			Total.				Total.					Total.			
Found.	Guaranteed.	Insoluble.	Found.	Guaranteed.	Present as Muriate.	Present as Sulphate.	Found.	Guaranteed.	Water Soluble.	Available.	Inactive Insoluble.	Found.	Guaranteed.		
7.49	6.00	.87	8.36	7.00	2.68	.....	2.68	2.00	2.31	2.85	b.43	3.28	3.29	32.12	.....
8.78	8.00	1.75	10.53	9.00	3.44	.....	3.44	3.00	.81	1.26	b.24	1.60	1.65	27.50	28.00
7.81	7.60	1.59	9.40	8.00	1.98	.....	1.98	2.00	.37	.....	....	.52	.41	16.29	18.00
9.35	9.00	1.28	10.63	10.00	2.46	.....	2.46	2.00	.44	.55	b.17	*.72	.82	21.63	20.00
8.26	8.00	.41	8.67	8.50	.66	.....	.66	.50	.26	.36	c.21	.57	.41	15.86	18.75 / 17.50
8.88	8.00	1.72	10.60	8.50	1.73	.32	2.05	2.00	1.52	2.08	b.61	2.69	2.47	29.80	.....
*8.54	9.00	.51	*9.05	9.50	1.27	5.10	6.37	3.00	1.30	1.51	b.30	1.81	1.65	34.72	.....
3.47	9.00	.46	9.93	9.50	1.24	.....	1.24	1.00	.78	.92	c.25	1.17	1.03	20.97	21.75 / ..... / 21.25
7.94	8.00	1.91	9.85	9.00	1.24	.....	1.24	1.00	.72	.86	b.16	1.02	.82	19.58	18.25
8.96	9.00	1.25	10.21	10.00	2.23	.....	2.23	2.00	.80	.91	b.15	1.06	.82	22.44	21.86 / 21.00 / 20.50
7.90	8.00	1.59	9.49	9.00	2.50	.....	2.50	2.00	1.35	1.63	a.20	1.83	1.65	25.82	22.50 / 20.00
8.19	8.00	1.18	9.37	9.00	1.95	.....	1.95	2.00	.46	.56	b.13	.69	.41	19.49	18.20 / 21.00
8.59	8.00	1.33	9.92	9.00	2.96	.....	2.96	3.00	1.08	1.38	b.22	1.60	1.23	26.08	24.00
*7.57	8.00	.82	8.39	8.50	.80	.10	.90	1.00	.35	.57	c.45	1.02	.82	18.04	18.50
10.52	10.00	1.08	11.60	10.50	.80	1.44	2.24	2.00	.90	1.10	b.29	1.39	1.23	25.71	25.50
7.78	7.00	.62	8.40	7.50	.60	.44	1.04	1.00	.41	.63	c.41	1.04	.82	18.74	18.00
8.77	8.00	.38	9.15	9.00	2.68	.....	*2.68	3.00	.91	1.11	b.27	1.38	1.23	24.38	25.00

a b c characters indicating the proportion of insoluble nitrogen that is inactive: a=two-fifths or less; b=two-fifths to three-fifths; c=three-fifths or more.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.	Moisture in 100 pounds.
	AMERICAN AGRICULTURAL CHEMICAL CO., THE, NEW YORK.		
669	H. F. Gump & Sons, Inc., Dissolved Phosphate and Potash.	H. F. Gump & Son, Inc., Everett,	11.16
526	Bradley's Speeial Magic Phosphate, ...	Geo. R. Andrews, Enon Valley, ...	11.79
75		Greencastle Elevator Co., Greencastle.	
15	†Canton Chemical Soluble Phosphate and	W. B. Winey, Middlehurg, ...	8.16
337	Potash.	H. L. Orr, Tyrone, ...	
405	†Detrick's Soluble Phosphate and Potash,	Levi Berkey, Somerset, ...	9.43
730		Wm. T. Hoover, Port Matilda, ...	
592	†Great Eastern Soluble Acid Phosphate	W. A. Klinger, Drum, ...	10.04
731	and Potash.	F. H. Clemson, Stormstown, ...	
672		Diehl & Wolf, Lutzville, ...	
104	†Maryland Bono Super Phosphate, ...	L. H. Miller, New Oxford, ...	9.85
790		S. M. Shuyler & Son, Liverpool,...	
791	Maryland Linden Super Phosphate, ...	S. M. Shuyler & Son, Liverpool,...	12.81
269	Moro Phillips' Wheat Special, ...	Nickles & Stuart, Shippensburg, ...	6.29
512	†North Western Electric Phosphate, ...	Farmers' Supply Co., New Castle,	8.50
706		Neyhard & Keller, Orangeville, ...	
342	Packers' Union Banner Wheat Grower, ..	Wm. I. Brown, Airydale, ...	10.46
732		W. A. Stover, Spring Mills, ...	
377	†Read's Champion Phosphate, ...	Robt. A. Daubach, Nazareth, ...	10.76
818		Amos Pennepacker, Bally, ...	
383	Read's Special Farmers' Reliable, ...	Alfred Shimer, Nazareth, ...	9.62
420		Wm. Hall, Danboro, ...	
22	†Reese's Grass and Grain, ...	H. H. Thomas, Beavertown, ...	8.28
532		J. F. Goodling, Loganville, ...	
677		E. L. Greist, Cessna No. 1, ...	
455	†Susquehanna Alkaline Phosphate, ...	H. P. Passmore & Bro., Oxford,...	10.22
714		The J. N. Getz Co., Lock Haven,..	
345	Wheeler's Wheat and Clover Fertilizer,....	L. P. Garver, Shirleyshurg, ...	10.30
	AMERICAN FERTILIZING CO., BALTIMORE, MD.		
208	American Premium Phosphate and Potash,	S. K. Savidge, Valley View, ...	11.13
	ARMOUR FERTILIZER WORKS, BALTIMORE, MD.		
678		Sewel Bowser, Alum Bank, No. 1,	
475	†Phosphate and Potash, ...	Frank Douglass, Indiana, ...	8.18
778		Ritter & Jacobs, Newport, ...	
	ATLANTIC FERTILIZER WORKS, BALTIMORE, MD.		
638	Atlantic Farmers' Alkaline Mixture, ...	H. A. Cranmer, Monroeton, ...	8.87
	BOWKER FERTILIZER CO., NEW YORK CITY.		
239	Bowker's Special Golden Harvest, ...	Samuel Carl, Spring Glen, ...	10.81
513		Marshall Bros., New Castle, ...	
216	†Bowker's Super Phosphate with Potash,	Geo. Maurer, Pitman, ...	8.80
657		John A. Gant, West Newton, ...	
	CHESAPEAKE CHEMICAL CO., THE, BALTIMORE, MD.		
688	†C. C. Co's Alkaline 10-1, ...	L. R. Over, Cunyville, ...	9.36
786		A. H. Ulsh, Middletown, ...	
785	C. C. Co's Alkaline 12-1, ...	A. H. Ulsh, Middletown, ...	12.32
	COE MORTIMER CO., NEW YORK CITY.		
293	E. Frank Coe's Alkaline Phosphate and Potash Special.	Adolph Boettinger, Danville, ...	8.99
484	E. Frank Coe's Dissolved Phosphate and Potash.	E. A. Bertholomew, Seioata, ...	9.68
1	†E. Frank Coe's Famous Prize Brand	E. W. Evey & Son, Lemont, ...	7.96
219	Grain and Grass Fertilizer.	Chas. Schoffstall, Valley View, ...	

†Composite sample.

FERTILIZERS.

Acid and Potash.

Phosphoric Acid in 100 Pounds.					Potash in 100 Pounds.				Computed commercial value of 2,000 pounds at Department rating.	Selling price of 2,000 pounds at point of selection.
Available.		Insoluble.	Total.		Present as muriate.	Present as sulphate.	Total.			
Found.	Guaranteed.		Found.	Guaranteed.			Found.	Guaranteed.		
10.46	8.00	.81	11.27	9.00	1.35	.....	1.35	1.00	14.25	16.00
*11.28	12.00	1.48	*12.76	13.00	2.19	.....	2.19	2.00	16.67	19.00
10.25	10.00	.83	11.08	11.00	2.32	.....	2.32	2.00	16.06	16.50 16.00 17.00
10.53	10.00	.79	11.32	11.00	2.34	.....	2.34	2.00	16.35	17.00 18.00
10.41	10.00	.83	11.24	11.00	1.94	.....	1.94	2.00	15.45	25.00 .....
10.43	10.00	.64	11.07	11.00	2.18	.....	2.18	2.00	15.91	16.00 15.75 16.50
11.17	11.00	.70	11.87	12.00	1.98	.....	1.98	2.00	16.00	17.25
10.02	10.00	.81	10.83	11.00	2.16	.....	2.16	2.00	15.62	16.00
9.97	10.00	.98	10.95	11.00	1.82	.....	*1.72	2.00	14.67	20.00 16.25
10.36	10.00	1.10	11.46	11.00	1.94	.....	1.94	2.00	15.58	19.15
9.87	10.00	.93	*10.80	11.00	1.77	.....	*1.77	2.00	14.71	13.25 14.30 16.25
11.84	12.00	1.27	13.11	13.00	2.14	.....	2.14	2.00	16.92	15.75
10.17	10.00	.82	10.99	11.00	1.88	.....	1.88	2.00	15.20	18.00 15.50 16.25
10.52	10.00	.61	11.13	11.00	2.04	.....	2.04	2.00	15.69	16.00 ..... 17.00
10.30	10.00	.97	11.27	11.00	2.08	.....	2.08	2.00	15.72	16.50
12.17	12.00	2.07	14.24	13.00	2.10	.....	2.10	2.00	17.23	17.50
*11.67	12.00	.65	12.32	12.50	2.00	.....	2.00	2.00	16.33	15.50 20.00 17.50
*9.60	10.00	1.11	10.71	.....	2.23	.....	2.23	2.00	15.60	17.00
*11.58	12.00	1.23	12.81	13.00	2.13	.....	2.13	2.00	16.74	18.00
9.92	10.00	.75	*10.67	11.00	1.88	.....	1.88	2.00	15.00	20.00 18.00 17.00
11.01	10.00	1.70	12.71	11.00	.88	.....	.88	1.00	13.90	15.00 15.00
*11.77	12.00	2.13	13.90	13.00	.92	.....	.92	1.00	14.50	16.00
*13.64	14.00	.46	*14.10	15.00	2.16	.....	2.16	2.00	17.91	20.00
*9.60	10.00	.88	*10.48	11.00	1.22	.....	1.22	1.00	13.40	15.50
10.15	10.00	.87	11.02	11.00	2.14	.....	2.14	2.00	15.69	15.96 16.00

*Constituent falls below guaranty.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.	Moisture in 100 pounds.
	EASTERN CHEMICAL CO., NEW YORK.		
78	Eastern Golden Harvest,	Diehl, Omwake & Diehl, Greenscastle.	8.29
	EUREKA FERTILIZER CO., LANCASTER, PA.		
98	Alkaline, No. 2,	N. E. Gobrecht & Bro., Hanover,	9.73
	S. M. HESS & BROTHER, INC., PHILADELPHIA, PA.		
251	†Emporer Phosphate.	S. D. Snyder, Meyerstown, R. D. No. 5.	8.98
718		S. M. Hooley, Reedsville,	
	M. P. HUBBARD & CO., BALTIMORE, MD.		
274	Hubbard's Soluble Phosphate and Potash,	I. F. Wright, Newville,	7.34
	LEBANON FERTILIZER WKS, LEBANON, PA.		
756	Levan's Special Mixture Fertilizer,	David Houser, Annville,	7.25
	FREDERICK LUDLAM COMPANY, BALTIMORE, MD.		
775	Ludlam Cecrops Fertilizer, On Top Special,	Jacob Fleisher, Shermansdale,	11.26
108	†Ludlam Cecrops Fertilizer, Phosphate	W. D. Myers, East Berlin,	10.33
777	and Potash.	Lewis Long, Elliottsburg,	
	MILLER FERTILIZER CO., THE, BALTIMORE, MD.		
107	Alkaline,	A. D. Brown, East Berlin,	10.46
	NASSAU FERTILIZER CO., NEW YORK.		
587	†Grass and Grain Fertilizer,	Philip Miller, Nescopeck,	10.44
356		Francis Baker, Everett,	
623		Daniel Rosenberger, Oley,	
	O. OBER & SONS CO., BALTIMORE, MD.		
783	Ober's Dissolved Phosphate and Potash,	J. M. Sarver, Millersown,	8.86
	PATAPSCO GUANO CO., BALTIMORE, MD.		
121	Baltimore Soluble Phosphate,	E. C. Thomas, Gettysburg,	10.62
	FOR THE POLLOCK FERTILIZER C., BALTIMORE, MD., MFD. BY THE AM. AG. CHEM. CO.		
125	†The Pollock Fertilizer Co's Soluble Phos-	E. S. Kelly, Gettysburg,	10.99
265	phate.	J. D. Garman, Mongol,	
365	†The Pollock Fertilizer Co's Victor Brand	Francis Baker, Everett,	11.47
667	Phosphate.	Mills & Gerhardt, Kingwood,	
	RASIN MOUNMENTAL CO., BALTIMORE, MD.		
322	†Rasin's Little Giant Phosphate and Potash.	H. D. Miller, Mifflinville,	7.62
8		Bradford & Son, Center Hall,	
837		L. A. Geiger, Joanna,	
622	†Rasin's Phosphate and Potash Revised,	Schlegel, Adams & Co., Fleetwood,	8.17
702		H. B. Low & Son, Orangeville,	
178	†Rasin's Vitoria Phosphate and Potash,	Henry K. Mohr, Quakerstown,	12.83
48		S. B. Miller, Mifflinburg,	
703		H. B. Low & Son, Orangeville,	
	SCOTT FERTILIZER CO., THE, ELKTON, MD.		
366	Scott's Soluble Phosphate and Potash, 12x2.	William Beck, Easton, R. D. No. 4,	11.22
	YOR THE SOUTHERN FERTILIZER CO., YORK, PA., BY AM. AG. CHEM. CO.		
142	Southern Fertilizer Co's Farmers' Mixture,	Bert Hoff, Spring Grove,	10.05
	I. P. THOMAS & SONS CO., PHILADELPHIA, PA.		
118	†Alkaline Fertilizer.	N. Guy Snyder, Aspers,	10.67
67		L. S. Knezer, J. A. Martin, Mifflintown.	
334		F. E. Marty, Washingtonville,	

†Composite sample.

FERTILIZER—Continued.

Phosphoric Acid in 100 Pounds.					Potash in 100 Pounds.				Computed commercial value of 2,000 pounds at Department rating.	Selling price of 2,000 pounds at point of selection.
Available.			Total.				Total.			
Found.	Guaranteed.	Insoluble.	Found.	Guaranteed.	Present as muriate.	Present as sulphate.	Found.	Guaranteed.		
11.99	12.00	.54	12.53	.....	1.66	.....	*1.66	2.00	15.82	18.00
12.62	10.00	.55	13.17	11.00	.80	.....	*.80	2.00	14.48	14.00
10.62	10.00	.55	11.17	11.00	1.54	.....	1.54	1.00	14.70	..... 15.00
10.52	10.00	.92	11.44	11.50	2.10	.....	2.10	2.00	15.86	.....
11.97	12.00	1.22	13.19	13.00	1.57	.....	*1.57	2.00	15.75	.....
12.80	12.00	.81	13.61	13.00	2.15	.....	2.15	2.00	17.43	.....
10.14	10.00	.77	10.91	11.00	1.98	.....	1.98	2.00	15.36	15.90 16.00
13.40	11.00	.67	14.07	11.50	1.98	.....	1.98	2.00	17.48	15.50
10.09	10.00	.77	10.86	11.00	2.10	.....	2.10	2.00	15.54	17.00 16.50 .....
10.77	10.00	1.33	12.10	11.00	2.32	.....	2.32	2.00	16.50	.....
11.57	11.00	.92	12.49	12.00	1.94	.....	1.94	2.00	16.06	17.00
10.58	10.00	1.01	11.59	11.00	1.82	.....	1.82	2.00	15.31	15.50 .....
10.68	9.00	.74	11.42	10.00	1.70	.....	1.70	1.00	15.08	16.00 15.00
8.81	8.00	1.40	10.21	9.00	2.18	.....	2.18	2.00	14.83	18.00 16.25 14.00
11.64	10.00	1.51	13.15	11.00	1.35	.....	1.35	1.00	15.21	14.00 14.25
12.61	12.00	1.89	14.50	13.00	2.18	.....	2.18	2.00	17.66	.... 17.75
13.59	12.00	1.02	14.61	.....	2.52	.....	2.52	2.00	18.72	16.50
9.86	10.00	.94	*10.80	11.00	2.02	.....	2.02	2.00	15.21	15.50
9.88	10.00	.85	10.73	10.50	1.50	.....	*1.50	2.00	14.21	16.00 ....

*Constituent falls below guaranty.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.	Moisture in 100 pounds.
	VIRGINIA CAROLINA CHEM. CO., RICHMOND, VA., FOR SALE BY RASIN MONUMENTAL CO.		
723	V. C. C. Co's Dissolved Phosphate and Potash.	McCalmont & Co., Bellefonte, ...	10.64
	ROBT. A. WOOLDRIDGE CO., BALTIMORE, MD.		
285	†Wooldridge's Special Old Sledge Phosphate.	W. S. Stewart, Carlisle, ...	9.99
42		C. C. Catherman, Hartleton, ...	
684		V. A. Stufft, Imler, ...	
	YORK CHEMICAL WORKS, YORK, PA.		
500	†Dempwolf's Ten and One, ...	Geo. Edleman, Northampton, ...	7.53
105		H. M. Berkheimer, Abbottstown,...	
680		W. C. Saylor, Cessna, ...	

FERTILIZER—Continued.

Phosphoric Acid in 100 Pounds.					Potash in 100 Pounds.					
Available.			Total.				Total.			
Found.	Guaranteed.	Insoluble.	Found.	Guaranteed.	Present as muriate.	Present as sulphate.	Found.	Guaranteed.	Computed commercial value of 2,000 pounds at Department rating.	Selling price of 2,000 pounds at point of selection.
10.94	10.00	1.58	12.52	11.00	2.18	.....	2.18	2.00	16.48	19.00
13.99	14.00	.89	14.88	15.00	2.44	.....	2.44	2.00	18.86	19.95 19.61 21.00
11.80	10.00	.77	12.57	10.50	.82	.....	.82	1.00	14.00	12.75 14.00 .....

DISSOLVED BONE

Furnishing Phosphoric

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.
	BAUGH & SONS CO., PHILADELPHIA, PA.	
169	†Baugh's Ammoniated Super Phosphate,	Thomas Haines & Co., Malvern,
102		H. H. Loose, Menges Mills,
781		B. F. Horting, Newport,
272	†Baugh's Half & Half Mixture,	Allison & Fogelsonger, Shippensburg,
81		Cook Grain, Feed & Fert. Co., Dillsburg,
348		M. J. Bowmaster & Co., Arbisonia,
	BERG CO., THE, PHILADELPHIA, PA.	
247	†Berg's Special Bone Manure,	A. G. Bowman, Palmyra,
424		Edw. F. Bracken, Paoli,
	CENTRAL CHEM. CO., THE, THOMAS FERTILIZER WKS., HAGERSTOWN, MD.	
799	C. C. C. Bone Compound,	E. W. Rupp, Shiremanstown,
469	†C. C. C. Pride of the Valley,	John F. Hahn, Ebensburg, R. D. No. 1,
580		Edgar Hepler, Hepler,
390	C. C. C. Special Bone Mixture,	E. S. Thomas, Hollsopple No. 2,
237	†C. C. C. Superior,	Edgar Hepler, Hepler,
798		E. W. Rupp, Shiremanstown,
	COE MORTIMER CO., NEW YORK.	
391	E. Frank Coe's Basic Fruit & Legume Phosphate (Basic Lime Phosphate) (Key Plow Brand).	J. M. Croyle & Son, Boswell, R. No. 1,
	EUREKA CHEMICAL CO., BALTIMORE, MD.	
661	Eureka Dissolved Animal Base,	C. C. Davis, Greensboro,
	JOSEPH R. GAWTHROP, KENNETT SQUARE, PA.	
157	Ammoniated Special Phosphate for Corn Oats & Wheat.	Jos. K. Gawthrop, Kennett Square,
	GRIFFITH & BOYD CO., BALTIMORE, MD.	
542	†Peerless Mixure,	E. H. Steiner, Cordorus,
28		Frank Hoyes, Reedsville,
809		Harvey Hebner, Harrisburg, R. No. 1,
759	Queen Guano,	A. L. Hartman, Schafferstown,
	LEBANON FERTILIZER WORKS, LEBANON, PA.	
236	Levan's Wheat & Grass Fertilizer Special,	A. J. Fidler, Sec., Grange No. 1258, Rock.,
	MARTIN FERTILIZER CO., PHILADELPHIA, PA.	
83	†Martin's Crop Producer,	Cook Grain, Feed & Fert. Co., Dillsburg,
53		Buffalo Valley Farmers & Consumers Asso., Lewisburg.
446		Harry Pyle, Coccart,
	MILLER FERTILIZER CO., THE, BALTIMORE, MD.	
135	W. G. Phosphate,	Geo. C. Linebaugh, Dover No. 4,
	OYLER & SPANGLER, GETTYSBURG, PA.	
117	Special,	Oyler & Spangler, Gettysburg,

†Composite sample.
*Constituent falls below guaranty.

FERTILIZERS.

Acid and Nitrogen.

Moisture in 100 pounds.	Phosphoric Acid in 100 Pounds.					Nitrogen in 100 Pounds.					Computed commercial value of 2,000 lbs. at Dept. rating.	Selling price of 2,000 pounds at point of selection.
	Available.		Insoluble.	Total.		Water soluble.	Available.	Inactive—Insoluble.	Total.			
	Found.	Guaranteed.		Found.	Guaranteed.				Found.	Guaranteed.		
5.86	*10.01	14.00	1.96	11.97	.....	.56	.81	b.38	1.19	.82	18.61	20.00 ..... 18.75
4.74	12.78	.....	9.08	21.86	19.00	.69	1.14	b.36	1.50	1.23	25.91	23.00 22.80 25.25
5.43	12.08	7.00	3.25	15.33	11.00	.57	1.08	b.56	*1.64	2.00	23.18	..... 25.00
10.03	*13.39	14.00	.93	14.32	.....	.78	.98	b.23	1.21	1.25	21.16	23.00
5.85	*8.94	10.00	1.31	10.25	.....	.52	.65	b.17	.82	.82	15.53	17.00 17.00
6.51	*9.06	10.00	2.00	11.06	.....	1.00	1.27	b.35	1.62	1.65	19.60	23.00
8.78	*11.30	12.00	1.22	12.52	.....	.64	.75	c.21	.96	.82	18.28	18.00 21.00
6.82	12.88	13.00	.81	*13.69	14.00	.....	.....	.....	.34	.....	13.51	16.00
5.75	10.23	10.00	.65	10.88	10.50	.93	1.12	b.26	1.38	1.24	18.97	30.00
6.38	8.42	6.00	1.19	9.61	7.00	.57	1.39	b.84	2.23	1.50	19.60	26.00
6.05	9.59	8.00	1.56	11.15	9.00	1.16	1.32	b.22	1.54	.41	19.65	15.25 ....
6.48	8.84	9.00	2.74	11.58	10.00	.36	.56	b.28	.84	.85	16.36	19.00
5.76	*9.49	10.00	2.50	11.99	11.00	1.11	1.32	b.28	1.60	1.65	20.25	20.00
10.83	10.09	10.00	1.54	11.63	.....	.60	.78	c.47	1.25	1.03	18.74	16.50 ..... 17.50
3.71	6.87	7.00	.42	*7.29	7.50	.22	.37	b.19	.56	.41	12.12	16.50
5.50	12.11	10.00	2.42	14.53	12.00	.41	1.00	a.28	1.28	.....	22.21	19.00

a, b, c: Letters indicating the proportions of insoluble nitrogen that is inactive: a=2/5 or less; b=2/5 to 3/5; c=3/5 or more.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.
	READING BONE FERTILIZER CO., READING, PA.	
373	†Animal Tankage Mixture,	Chas. Shimmel, Ackermanville,
69		J. M. Snakey, McAllisterville,
432		John W. Root, Kimberton,
431	†Dissolved Animal Matter,	John W. Root, Kimberton,
376		Chas. Shimmel, Ackermanville,
825		J. W. Slipp, Birdsboro,
626	Never Fail Crop Grower,	Jacob D. Moyer, Bechtelville,
70	†Reading Special Grass & Grain Producer,	J. M. Snakey, McAllisterville,
442		Benj. F. Shearer, Dublin,
	READING CHEMICAL CO., READING, PA.	
521	†Farmer's Favorite,	John W. White, Jamestown,
826		Jno. A. Smith, Birdsboro No. 1,
827	Reading Soil Builder,	Jno. A. Smith, Birdsboro No. 1,
	ROBERT A. REICHARD, ALLENTOWN, PA.	
202	Special Fertilizer,	No agent, Fogelsville,
	F. S. ROYSTER GUANO CO., BALTIMORE, MD.	
114	Royster's Pouquin Ammoniated Super-Phosphate.	Arthur Roberts, Gettysburg No. 5,
	TRENTON BONE FERTILIZER CO., TRENTON, N. J.	
190	Bone & Tankage,	L. A. Howells, Morrisville,
	F. W. TUNNEL & CO., PHILADELPHIA, Pa.	
168	Wheat Grower,	S. Carl Garner, Hatboro,
	UNION CHEMICAL WORKS, INC., NORTH WALES, PA.	
437	Three Ten Mixture,	Jesse Zeigler, Spring City, R. D.,
438	Two Twelve Mixture,	Jesse Zeigler, Spring City, R. D.,
	ROBT. A. WOOLDRIDGE CO., BALTIMORE, MD.	
85	Wooldridge High Grade Dissolved Animal Bone.	J. J. Spangler, Littlestown,
	YORK CHEMICAL WORKS, YORK, PA.	
411	Dempwol's Dissolved Animal Bone,	J. K. Stoltzus, Elverson,
570	†Dempwolf's Two & Ten,	B. M. Hartman, Millersburg, R. No. 1,
576		Hershey Store Co., Hershey,

†Composite sample.
*Constituent falls below guaranty.

LIZERS—Continued.

Moisture in 100 pounds.	Phosphoric Acid in 100 Pounds.					Nitrogen in 100 Pounds.					Computed commercial value of 2,000 lbs. at Dept. rating.	Selling price of 2,000 pounds at point of selection.
	Available.		Insoluble.	Total.		Water soluble.	Available.	Inactive—Insoluble.	Total.			
	Found.	Guaranteed.		Found.	Guaranteed.				Found.	Guaranteed.		
7.08	*13.59	14.00	3.02	16.61	15.00	1.06	1.40	a.19	1.59	1.64	24.18	25.00 25.50 27.00
5.66	*9.73	10.00	2.36	12.09	11.00	.57	.79	b.22	1.01	.82	17.66	20.00 24.00 21.00
6.69	*9.50	10.00	1.97	11.47	11.00	.48	.72	b.22	.94	.82	17.02	22.00
6.39	7.90	7.00	.73	8.63	8.00	.63	.83	a.12	.95	.82	15.01	18.50 .....
6.25	*9.21	10.00	1.09	*10.30	11.00	.56	.68	b.18	.86	.82	15.68	22.00 22.00
7.02	*8.62	10.00	1.27	*9.89	11.00	.87	1.14	b.33	1.47	1.64	18.20	25.00
4.72	*10.89	12.00	7.29	18.18	.....	.56	.94	b.33	1.27	1.43	22.22	.....
5.58	10.43	10.00	.92	11.35	10.50	.99	1.48	a.26	1.74	1.65	22.02	19.84
7.49	11.86	8.00	3.00	14.86	9.00	1.04	1.7	b.44	2.14	2.06	25.11	27.00
6.09	9.84	8.00	2.91	12.75	9.00	.91	1.12	b.16	1.28	.82	19.38	22.00
4.62	10.19	10.00	1.28	11.47	.....	1.61	1.98	b.30	2.28	2.46	23.47	24.50
4.81	*11.55	12.00	1.16	12.71	.....	1.16	1.4.	b.24	1.66	1.64	21.67	21.50
10.65	12.29	12.00	2.13	14.42	14.00	1.76	2.63	a.15	2.18	2.06	25.32	25.00
6.20	16.27	12.00	2.08	18.35	16.00	1.11	2.18	a.36	2.54	2.47	30.46	30.00
4.69	9.97	10.00	.64	10.61	.....	1.17	1.44	b.21	1.65	1.65	19.99	..... 21.00

a b c characters indicating the proportion of insoluble nitrogen that is inactive: a=two-fifths or less; b=two-fifths to three-fifths; c=three-fifths or more.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.
	AMER. AGR. CHEMICAL CO. THE, NEW YORK.	
103	†14% Acid Phosphate,	L. H. Miller, New Oxford,
29		Williamson Taylor, Reedsville,
191		A. B. Shoemaker, Tullytown,
656	Great Eastern Dissolved Acid Phosphate,	A. H. Derstine, New Stanton,
38	Packer's Union Superior Acid Phosphate,	W. L. Grenoble, Mingoville,
	BAUGH & SONS CO., PHILADELPHIA, PA.	
63	†Baugh's H. G. Acid Phosphate,	John Seiber, Mifflintown,
5		Robt. D. Forman, Center Hall,
101		H. H. Loose, Menges Mills,
	BOWKER FERTILIZER CO., NEW YORK CITY.	
582	†Bowker's Soluble Phosphate,	Samuel Carl, Spring Glenn,
514		Marshall Bros., New Castle,
658		John A. Gant, West Newton,
665	†Bowker's Special Sixteen,	W. D. Smith, Jefferson,
276		Jno. K. Beidler & Son, Oakville,
733		W. B. Krebs, Milheim,
	CHESAPEAKE CHEMICAL CO., BALTIMORE, MD.	
349	C. C. Co.'s Dissolved Phosphate 14%,	C. E. Starr, Three Springs,
359	†C. C. Co.'s Dissolved Phosphate, 16%,	J. S. Hershberger, Everett,
689		J. L. Longenecker, Woodbury,
	COLUMBIA GUANO CO., BALTIMORE, MD.	
3	Columbia H. G. 16% Acid Phosphate,	J. H. Ross, Linden Hall,
	JOSIAH COPE & CO., BALTIMORE, MD.	
605	Acidulated Phosphate,	Jones Eaverson, Christiana,
	EASTERN CHEMICAL CO., NEW YORK.	
351	Eastern Dissolved Phosphate,	Diehl, Omwake & Diehl, Richmond,
	EUREKA CHEMICAL CO., BALTIMORE, MD.	
564	†Eureka Soluble Phosphate,	Jno. Schminkey, Gratz,
654		C. S. Funk, New Stanton,
	HUBBARD FERTILIZER CO., THE, BALTIMORE, MD.	
683	†Hubbard's 14% Phosphate,	Edgar Hartle, Osterburg No. 1,
793		J. E. Ellenberger, Liverpool,
	LANCASTER BONE FERTILIZER CO., LANCASTER, PA.	
333	†Farmer's Economy,	John A. Cooper, Washingtonville,
457		Ira Bechtel, Roaring Springs,
	LEBANON FERTILIZER WORKS, LEBANON, PA.	
231	Levan's Acid Phosphate,	Horace Kinsey, Pine Grove,
	LISTER'S AGRICULTURAL CHEMICAL WORKS, NEWARK, N. J.	
339	†Lister's Buyers Choice Acid Phosphate,	Benj. Everhart, Franklinville,
31		S. A. Hostetter, Belleville,
608	†Lister's High Grade Acid Phosphate,	Harry E. Miller, Christiana,
768		Hiram Grub, Duncannon, No. 4,
794		J. E. Ellenberger, Liverpool,
	MARTIN FERTILIZER CO., PHILADELPHIA, PA.	
372	†Martin's Acid Phosphate,	Edwin Honck, Bangor,
57		Buffalo Valley Farmers & Cons. Asso., Lewisburg.
447	Martin's Acid Phosphate, 16%,	Harry Pyle, Cossart, Pa.,
89		A. P. Lippy, Littlestown,
	MILLER FERTILIZER CO., THE, BALTIMORE, MD.	
137	Acid Phosphate,	Geo. C. Linebaugh, Dover No. 4,

†Composite sample.

ROCK PHOSPHATE.

Phosphoric Acid.

Moisture in 100 pounds.	Phosphoric Acid in 100 Pounds.					Computed commercial value of 2,000 pounds at Department rating.	Selling price of 2,000 pounds at point of selection.
	Available.		Insoluble.	Total.			
	Found.	Guaranteed.		Found.	Guaranteed.		
6.89	13.91	14.00	.74	*14.65	15.00	12.56	12.00 ..... 13.00
5.39	14.51	14.00	1.40	15.91	15.00	13.11	15.00
10.00	14.53	14.00	1.05	15.58	15.00	13.05	.....
8.24	16.16	14.00	.17	16.33	.....	13.92	14.00 ..... 13.00
5.01	14.70	14.00	.93	15.63	15.00	13.14	13.00 17.50 14.25
9.69	16.40	16.00	.85	17.25	17.00	14.23	17.0 ..... 14.60
8.53	14.38	14.00	.79	15.17	15.00	12.86	13.50
11.02	16.89	16.00	.36	17.25	17.00	14.45	15.00 15.00
8.70	17.52	16.00	1.07	18.59	16.50	15.04	14.00
7.71	*13.74	14.00	.96	*14.70	15.00	12.50	12.00
10.29	14.62	14.00	.91	15.53	.....	13.09	12.50
7.08	14.41	14.00	1.06	15.47	14.50	12.96	..... 16.00
9.77	14.87	14.00	1.45	16.32	15.00	13.35	13.00 12.50
9.23	13.88	14.00	.32	*14.20	16.00	12.45	13.50 14.50
6.97	14.46	14.00	1.36	15.82	15.00	13.06	13.00
7.47	14.54	14.00	.79	15.33	15.00	12.99	12.99 13.00
6.47	16.91	16.00	.64	17.55	17.00	14.52	12.00 ..... 13.50
8.46	14.34	14.00	.29	14.63	.....	12.74	....
7.65	16.85	16.00	.27	17.12	.....	14.38	13.00 15.00
11.65	14.25	14.00	1.30	15.55	14.50	12.92	14.00

*Constituent falls below guaranty.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.
	NASSAU FERTILIZER CO., NEW YORK.	
590	Soluble Phosphate,	Philip Miller, Nescopeck,
	PATAPSCO GUANO CO., BALTIMORE, MD.	
277	†Patapsco H. G. Acid Phosphate,	John Taylor, Newburg,
771		Chas. S. Brunner, New Bloomfield,
369	Patapsco Pure Dissolved S. C. Phosphate,	Chas. Shimmel, Ackermanville,
	PIEDMONT MT. AIRY GUANO CO., BALTIMORE, MD.	
124	Piedmont 16% Acid Phosphate,	H. D. & J. F. Bream, Gettysburg,
	POLLOCK FERTILIZER CO., THE, BY THE A. A. C. CO., NEW YORK.	
126	†Pollock's Dissolved S. C. Phosphate,	E. S. Kelley, Gettysburg,
2		E. C. Ross, Lemont,
263		J. D. Garmer, Mongol,
304	†Rasin's Acid Phosphate,	E. A. Slagle, Paxinos,
148		E. H. Keen & Co., Parkersburg,
320	†Rasin's 16% Phosphate,	H. D. Miller, Mifflinville,
562		Emanuel Boyer, Elizabethville,
674		W. E. Hetzel, Cessna,
	READING BONE FERTILIZER CO., READING, PA.	
71	†Soluble Dissolved Phosphate,	J. M. Swakey, McAllisterville,
627		Jacob D. Moyer, Bechtelsville,
	READING CHEMICAL CO., READING, PA.	
808	†Clear Acid Phosphate,	Dr. H. F. Guyer, Phila., Pa.,
828		John A. Smith, Birdsboro No. 1,
	SCHALL SHELDON FERTILIZER CO., BUFFALO, N. Y.	
524	Dissolved Phosphate,	John Morrison, Transfer, R. D.,
	SCOTT FERTILIZER CO., ELLSTON, MD.	
257	†Scott's Tip Top Soluble Phosphate,	Elias Brubacher, Richland,
365		William Beck, Easton, R. D. No. 4,
	STANDARD GUANO CO., BALTIMORE, MD.	
2084	Standard Extra High Grade Acid Phosphate, 16%.	Chas. E. Gillett, Townsville,
	FOR SOUTHERN FERTILIZER CO., YORK, PA., BY THE AM. AGR. CHEM. CO.	
336	Southern Fertilizer Co., Dissolved Phosphate.	J. G. Rishel, Jerseytown,
	I. P. THOMAS & SONS CO., PHILADELPHIA, PA.	
709	†S. C. Phosphate,	F. P. Davis, Bloomsburg,
368		Geo. Hayden, Nazareth, R. D. No. 4,
767		C. F. Hass, Duncannon,
	FOR THE J. E. TYGERT CO., PHILA., PA BY THE AM. AGR. CHEM. CO.	
584	Acid Phosphate, 14%,	Geo. Miller, Mifflinville,
	UNION CHEMICAL WORKS, INC., NORTH WALES, PA.	
436	Acid Phosphate,	Jessie Zeigler, Spring City, R. D.,
	VIRGINIA CAROLINA CHEM. CO., BALTIMORE, MD., BY THE RASIN MONUMENTAL CO	
679	V. C. C. Co.'s Guaranteed 14% Acid Phosphate.	Joseph Knisely, Alum Bank.
	ROBERT A. WOOLDRIDGE CO., THE, BALTIMORE, MD.	
675	†Wooldridge's High Grade Acid Phosphate,	Norman G. Miller, Cessna,
84		J. J. Spangler, Littlestown,
720		Wm. Bailey, Milroy,
	YORK CHEMICAL WORKS, YORK, PA.	
360	†Dempwolf's Dissolved Phosphate,	J. S. Hershberger, Everett,
425		Edw. F. Bracken, Paoli,

†Composite sample.

PHOSPHATE—Continued.

Moisture in 100 pounds.	Phosphoric Acid in 100 Pounds.					Computed commercial value of 2,000 pounds at Department rating.	Selling price of 2,000 pounds at point of selection.
	Available.		Insoluble.	Total.			
	Found.	Guaranteed.		Found.	Guaranteed.		
6.99	14.16	14.00	1.26	15.42	15.00	12.84	14.00
8.77	16.90	16.00	.45	17.35	17.00	14.47	.....
							15.50
7.52	*13.71	14.00	1.53	15.24	15.00	12.62	13.00
10.94	16.69	16.00	.68	1.69	.....	13.93	15.50
7.23	14.41	14.00	.89	15.30	15.00	12.82	12.50
							.....
							.....
8.21	15.20	14.00	1.15	16.35	15.00	13.51	13.00
							13.00
							15.00
9.66	17.33	16.00	.83	18.16	17.00	14.84	13.50
							15.00
5.14	12.58	12.00	1.31	13.89	13.00	11.83	15.00
							17.00
10.35	14.61	14.00	.94	15.55	.....	13.06	.....
							16.00
6.40	13.99	14.00	1.64	15.63	15.00	12.84	14.00
11.20	15.20	14.00	1.66	16.86	.....	13.63	13.24
							13.00
9.17	16.48	16.00	.92	17.40	16.50	14.31	11.18
8.75	14.73	14.00	1.19	15.92	15.00	13.20	13.00
10.40	15.34	14.00	.32	15.66	14.50	13.40	11.75
							12.50
							14.00
7.70	14.82	14.00	.83	15.65	15.00	13.17	.....
5.74	14.87	14.00	.96	15.83	.....	13.36	15.00
10.70	14.70	14.00	1.12	15.82	15.00	13.17	14.00
8.55	17.11	16.00	.26	17.37	17.00	14.55	13.00
							13.36
							.....
10.79	15.99	14.00	.22	16.21	14.50	13.81	14.00
							14.00

*Constituent falls below guaranty.

GROUND BONE
Furnishing Phosphoric

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.
	BAUGH & SONS CO., PHILADELPHIA, PA.	
325	†Baugh's Fine Ground Bone,	T. F. Garrison, Berwick,
154		H. A. Mendenhall, Toughkenamon,
550		Geo. W. Hottginger, Red Lion,
	COE MORTIMER CO., NEW YORK CITY.	
341	Fine Ground Bone,	Thos. Conover, Saulsburg,
	JAMES G. DOWNWARD CO., THE, COATESVILLE, PA.	
413	Pure Ground Bone,	Isaae Tomlison, Huntingdon Valley,
	LEBANON FERTILIZER WORKS, LEBANON, PA.	
232	Levan's Pure Fine Ground Bone Meal.	Horace Kinsey, Pine Grove,
	LISTER AGRICULTURAL CHEMICAL WKS., NEWARK, N. J.	
426	†Lister's Bone Meal,	Wm. H. Fritz, Berwyn,
690		Jacob Bouser, St. Clairsville,
	NITRATE AGENCY CO., NEW YORK.	
841	Ground Bone, 3-50,	Samuel R. Wenger, Baresville, R. No. 1,
	G. OBER & SONS CO., BALTIMORE, MD.	
129	†Ober's Pure Raw Bone Meal,	D. Blocher & Co., Gettysburg,
722		Wagner Geise, Bellefonte,
	PATAPSCO GUANO CO., BALTIMORE, MD.	
389	Patapsco's High Grade Ground Bone,	J. J. Lehman, Hollsopple, R. D. No. 2,
	FOR THE POLLOCK FERTILIZER CO., BALTIMORE, MD., BY AMERICAN AGR. CHEM. CO.	
127	Pure Raw Bone,	E. O. Kelly, Gettysburg,
	RASIN MONUMENTAL CO., BALTIMORE, MD.	
149	†Rasin's Pure Raw Bone,	E. H. Keen & Co., Parkersburg,
212		S. K. Savidge, Valley View,
	READING CHEMICAL CO., READING, PA.	
829	Pure Ground Bone,	John A. Smith, Birdsboro, R. D. No. 1,
	R. A. RICHLAND, ALLENTOWN, PA.	
364	Raw Bone Meal,	E. J. Gerlach, Bethlehem,
	SCOTT FERTILIZER CO., THE, ELKTON, MD.	
451	Scott's Pure Ground Raw Bone,	Mackey & Yerkes, Oxford,
	SWIFT & CO., BALTIMORE, MD.	
474	Swit's Pure Bone Meal,	Geo. R. Stewart, Indiana, R. D. No. 4,
	I. P. THOMAS & SONS CO., PHILADELPHIA, PA.	
174	†Pure Ground Bone,	I. S. Snyder, Sellersville,
517		W. J. Moyer, Greenville,
	JACOB TRINLEY & SONS, LINFIELD, PA.	
152	Pure Raw Bone Meal,	A. M. F. Stiteler, Uwchland,
	UNION CHEMICAL WORKS, INC., NORTH WALES, PA.	
435	Raw Bone Meal,	Jessie Zeigler, Spring City, R. D.,
	EMIL WAHL MFG. CO., PHILADELPHIA, PA.	
153	Emil Wahl's Pure Philadelphia Button Bone Meal.	H. A. Mendenhall, Toughkenamon,
	YORK CHEMICAL CO., YORK, PA.	
138	†Dempwolf's Pure Ground Bone,	Farmers' Co-Op. Association, Dover,
412		J. K. Stoltzfus, Elverson,

†Composite sample.
*Constituent falls below guaranty.

FERTILIZERS.

Acid and Nitrogen.

Moisture in 100 pounds.	Chemical Analysis.				Nitrogen.		Computed commercial value of 2,000 pounds at Department rating.	Selling price of 2,000 pounds at point of delivery.
	Mechanical Analysis.		Phosphoric Acid.					
	Found.	Guaranteed.	Found.	Guaranteed.	Diameter less than 1-50 inch. "Fine."	Diameter greater than 1-50 inch. "Coarse."		
4.94	53	47	17.74	16.49	2.72	2.47	26.53	33.50 29.00 30.00
3.79	47	53	24.00	22.88	2.74	2.47	30.24	30.00
5.37	50	50	22.25	20.00	4.05	2.87	34.80	34.00
3.03	54	46	*24.71	27.00	2.44	2.56	30.68	27.00
5.22	57	43	*22.46	23.00	2.86	2.67	30.75	37.50 31.00
4.27	78	22	28.78	22.88	2.35	2.46	35.23	32.00
6.76	60	40	23.53	21.00	3.96	3.70	36.08	34.00 .....
1.05	59	41	21.83	20.59	*2.88	3.29	30.67	35.00
7.24	50	50	*20.46	21.51	3.94	3.70	34.32	34.00
5.48	40	60	*18.85	20.60	4.26	;3.70	32.45	34.00 31.25
4.28	43	57	25.64	22.95	2.82	2.87	31.90	35.00
6.17	30	70	*21.51	23.00	3.80	3.70	31.89	40.00
6.96	50	50	25.00	21.50	3.84	3.30	36.00	35.00
4.17	75	25	27.14	24.00	3.16	2.47	36.85	30.00
3.11	52	48	23.46	23.00	2.49	2.46	29.83	34.00 29.00
5.47	32	68	20.26	20.00	4.52	3.69	33.81	35.00
7.58	29	71	*20.38	21.00	4.24	3.69	32.76	33.00
11.69	67	33	25.69	24.59	*2.58	3.30	32.95	33.00
3.59	50	50	23.64	23.00	2.56	2.47	30.24	30.00 33.00

a b c characters indicating the proportion of insoluble nitrogen that is inactive: a=two-fifths or less; b=two-fifths to three-fifths; c=three-fifths or more.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.	Moisture in 100 pounds.
	AMERICAN AGRICULTURAL CHEMICAL CO., THE, NEW YORK.		
382	†Ground Tanage, 6-30,	Robert A. Daubach, Nazareth,	6.16
583		Geo. Miller, Mifflinville,	
	ASSOCIATED CHEMICAL CO., HAGERSTOWN, MD.		
736	Animal Tankage,	John W. Bathgate, State College,	5.72
	BERG CO., THE, PHILADELPHIA, PA.		
167	Berg's Animal Bone and Meat,	L. W. Danenhower, Southampton,	4.69
	NITRATE AGENCY CO., NEW YORK.		
163	Basic Slag (H. A. Brand),	Edward Briton & Son, West Chester,	.19
840	Ground Tankage,	Samuel R. Wenger, Rareville, No. 1,	7.33
	REICHARD HIDE & TALLOW CO., ASHLAND, PA.		
599	Tankage,	Grange No. 1418, John Kunkle, Agt., Mahanoy City.	4.36
	C. O. YOUNG & CO., JOHNSTOWN, PA.		
855	B. B. Brand Packing House Fertilizer,	P. N. Casser, Johnstown,	3.43

†Composite sample.
*Constituent alls below guaranty.

FERTILIZERS.

Phosphoric Acid in 100 Lbs.					Potash in 100 Lbs.				Nitrogen in 100 Lbs.					Computed commercial value of 2,000 pounds at Department rating.	Selling price of 2,000 pounds at point of selection.
Available.			Total.				Total.					Total.			
Found.	Guaranteed.	Insoluble.	Found.	Guaranteed.	Present as muriate.	Present as sulphate.	Found.	Guaranteed.	Water soluble.	Available.	Inactive—Insoluble.	Found.	Guaranteed.		
.....	.....	....	14.92	13.73	....	....	.....	....	1.57	2.92	b1.45	*4.37	4.95	33.47	30.50 .....
.....	.....	....	9.87	.....	.....	.....	.....	....	1.16	4.49	a1.61	*6.10	6.50	36.37	.....
.....	.....	....	*16.33	17.00	.....	.....	.....	....	.84	2.55	a.67	3.23	3.30	30.19	33.00
14.38	.....	....	*16.21	17.00	.....	.....	.....	....	....	.....	b2.15	5.67	5.75	33.56	36.00
.....	.....	....	8.69	6.86	.....	.....	.....	....	1.80	3.52					
.....	.....	....	10.09	9.16	.....	.....	.....	....	3.45	6.07	a1.68	7.75	6.17	43.30	29.00
.....	5.50	....	11.23	7.00	.....	.....	.....	.22	1.25	3.37	a1.13	4.50	3.00	31.02	25.00

a, b, c: Letters indicating the proportion of insoluble nitrogen that is intctive: a=2/5 or les; b=2/5 to 3/5; c=3/5 or more.